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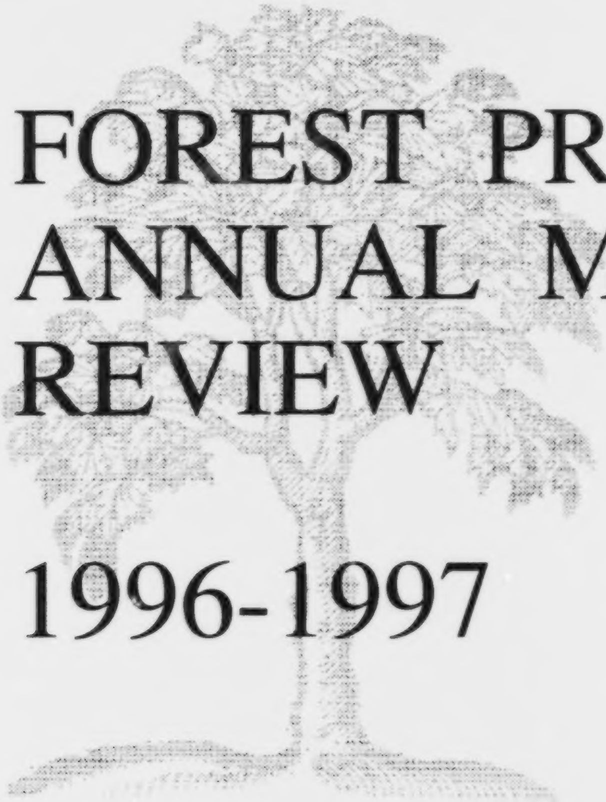

FOREST PRODUCTS ANNUAL MARKET REVIEW

1996-1997

UNITED NATIONS

ECE/TIM/BULL/50/3

United Nations Economic Commission for Europe
Food and Agriculture Organization
of the United Nations

Timber Section,
Geneva, Switzerland

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FOREST PRODUCTS ANNUAL MARKET REVIEW
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NOTE

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ABSTRACT

The *Forest Products Annual Market Review: 1996-1997* provides general and statistical information on forest products markets in the UN/ECE region of Europe, North America and the former USSR. The *Review* begins with a general overview of the forest products markets in the region. A description of the economic situation in the region is then followed by a discussion of developments in four sectors: roundwood, sawnwood, wood-based panels and paper and paperboard, woodpulp and pulpwood. For each sector, production, consumption and trade are considered and relevant material on specific markets is included. Tables included with the text present detailed information and annex tables contain further reference material.

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PREFACE

The *Forest Products Annual Market Review* provides general and statistical information and analysis on forest products markets in the UN/ECE region, including Europe, the former USSR and North America, for the period beginning 1996 to mid 1997. It is intended to serve as a background document for the annual market discussion for the ECE Timber Committee session, which will be held on 7 October 1997. Furthermore, it provides readers with comprehensive analysis on recent developments in the forest and forest product sector in the ECE region.

The *Review* begins with an overview of the forest products markets, followed by a general appraisal of economic conditions which have directly or indirectly influenced forest products markets in the ECE region. In-depth description is given of sectoral developments covering roundwood, sawnwood, wood-based panels, and pulpwood, pulp and paper. Production, consumption and trade are considered and additional material on specific markets is included. An additional section covers Japanese timber markets from the perspective of the ECE region. While most tables will be found with their descriptive text, additional tables found in the annex present information on apparent consumption by product and country.

This *Review* is based on data from ECE-region countries responding to a joint FAO/ECE/EUROSTAT questionnaire and other data available until the end of May 1997. The authors express their appreciation to all contributing countries which included the major ECE-region producers and traders, plus an increasing number of countries in transition to market economies.

In light of the problems with reporting intra-European Union trade statistics, UN COMTRADE statistics or estimations of trade provided by the respondents enabled a timely estimation of the 1996 European market. It must be stressed that May is early for some countries to submit statistics for the previous year, thus some data is preliminary by necessity; however the Timber Committee recognizes that the timely publication of the *Review* in preparation for its market discussions, is a worthwhile trade off for improved data quality. Supplementary data were taken from specialized journals, industry associations and other sources where official data were lacking. When no data were available, the previous year's figure is used to calculate the regional total.

The Timber Committee now has a website on the **World Wide Web** which has abstracts of the *Review* and other projects. It will eventually be expanded to include the TIMBER database (which continues to be available on diskette). **The address for the website is: http://www.unece.org/trade/timber.**

The *Review* will be complemented by the *Timber Bulletin* issue No. 6, *Forest Products Markets in 1997 and Prospects for 1998*, which will contain the results of the Timber Committee's market discussion. All statistics collected in the questionnaire are presented systematically in issue No. 2, *Forest Products Statistics, 1992-1996*. The other issues of the UN-ECE/FAO *Timber Bulletin* for 1997 (Volume L) are listed on the last page along with the other series of publications.

It would not be possible to produce the *Review* without the devoted efforts of a large number of people. The base data were supplied by country correspondents, who are acknowledged by name in the companion issue of the *Timber Bulletin* "Forest Products Statistics, 1992-1996". Some of these correspondents and other national experts also contributed supplementary data, notably on prices, and background information and explanation of trends. Particular mention should be made of the help received from Michael Adams, Phil Araman, Chris Argyl, George Barrett, Janis Bisenieks, Eric Boilley, Marc Boutin, John McLoughlin, Michael Buckley, Aija Budreiko, Yves Costrel, F. Dagneaux, Hakan Ekstrom, Jean Fayes, Peter Forsell, Alfonso Froncillo, Nobuaki Fukui, Riitta Hänninen, Eric Hansen, Bengt Hillring, Herman Huckert, Peter Hviid, Peter Ince, Steve Johnson, Shelby Jones, Suredra Joshi, Ayten Kamaci, Per Kihlblom, Eric Kosenkranius, Irma Kullio, Giedrus Leliuga, Michael

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The secretariat also appreciates the many secondary sources of information used and thanks the authors and publishers of publications and websites and their authors for which many cited and uncited information was used. In addition the many organizations from whom we receive reports and publications are also appreciated.

The *Review* is produced as a joint effort by the Geneva Timber Section and Ed Pepke led and coordinated the work. Claude Huybrechts maintains the TIMBER database and produced the basic tables. The individual chapters had the following principal authors: 1. Ed Pepke; 2. Kit Prins (drawing on the *Economic Survey of Europe* prepared by the Division of Economic Analysis of ECE); 3A-C. Ed Pepke; 3D. Jorge Najera; 3E. Kit Prins; 3F. Ed Pepke. Kit Prins reviewed the whole draft. Romi Chopra was responsible for preparation, formatting, integration and presentation of the text, tables and graphs. This manuscript was completed on 25 July 1997. More information may be obtained by contacting:

Ed Pepke
Forestry Officer--Marketing
Timber Section
UN/ECE Trade Division
Palais des Nations
CH - 1211 Geneva 10, Switzerland
Tel. + 41 22 917 2872 or 917 1234
Fax: + 41 22 917 00 41
E-mail: Ed.Pepke@unece.org
Timber Section e-mail: info.timber@unece.org

Explanatory notes

"Apparent consumption" is calculated by adding a country's production to imports and subtracting exports. Thus stock changes, for which data are usually not available, are not taken into account.

"Net trade" is calculated as the balance of exports and imports and is shown as "+" for net exports, when exports exceed imports and is shown as "-" for net imports, when imports exceed exports. Trade data for EU countries include intra-EU trade, which is often estimated by the countries.

Insufficient data were received from all of the countries of the former Yugoslavia and the former USSR to publish complete information for these country groupings. The term "former USSR" is used in the tables for brevity when referring to the Commonwealth of Independent States (CIS) plus Estonia, Latvia and Lithuania. The term "central and eastern Europe", used exclusively for presentational convenience, includes Albania, Bulgaria, the Czech Republic, Hungary, Poland, Romania, the Slovakia and the former Yugoslavia. The countries of the former USSR and other countries of central and eastern Europe are referred to collectively as "countries in transition to market economies".

The term "coniferous" is used synonymously for "softwood" throughout the *Annual Market Review*. "Hardwood" is used synonymously for terms "non-coniferous" or "broadleaved" wood.

Symbols and abbreviations used

-	nil or negligible
...	not available
*****	secretariat estimate or unofficial figure
$	United States dollar unless otherwise specified
£	United Kingdom's pound sterling
App. cons.	Apparent consumption
c.i.f.	customs + insurance + freight included
CEFTA	Central European Free Trade Agreement
CIS	Commonwealth of Independent States
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
EU	European Union (currently 15 states)
f.a.s.	free alongside ship
FOB	free on board
GDP	gross domestic product
IMF	International Monetary Fund
m^3	cubic metre (solid volume of roundwood or processed product)
m^3EQ	cubic metres equivalent volume of wood in the rough
MDF	medium density fibreboard
m.t.	metric ton
NAFTA	North American Free Trade Agreement
OSB	oriented strand board
Prelim.	Preliminary
Q	Quarter
SFM	sustainable forest management
USDA	United States Department of Agriculture

Chapter 1

OVERVIEW OF FOREST PRODUCTS MARKETS

The year 1996 was marked by contrasts in the ECE region's forest products markets. Described in last year's *Review* as analogous to "a derailed, runaway train," the markets got back on track in the second half of the year and were picking up steam going into 1997. Record high pulp prices in 1995, driven by exceptionally strong demand in pulp and paper markets at that time, gave way to a downturn in forest products markets in latter 1995 and early 1996. As wide swings in stocks ended, markets in general returned to more normal levels, in line with steady long-term growth. With risk of oversimplifying a complex market situation in the ECE region (Europe, North America and the former-USSR) in 1996 and early 1997, this chapter presents an overview which should be considered carefully together with the developments explained in the subsequent chapters.

In 1996 *apparent consumption* of all forest products combined, fell in Europe and the Russian Federation by about 9 and 10 million m^3 respectively (table 1). For Europe this was only a 2% decrease while for Russia because of the greatly reduced level of consumption, the fall meant a drop of about 21%. In contrast North American consumption increased slightly by 1.5%.

In 1996, *North America* experienced a significant upturn in housing starts in the United States and in Canadian too. This led to record domestic consumption of sawnwood and panels which balanced downturns in certain export markets, e.g. Europe. Consumption of paper and paperboard fell. Encumbered by continued weakness in the pulp and paper markets, the timber industry could not match the record profits in 1995.

In *Europe*, 1996 was schizophrenic: the first half-year was a struggle to recuperate from the collapse of certain markets' demand at the end of 1995, while the second half-year witnessed a return of demand in some countries. Like North America, the European markets for roundwood, sawnwood and panels were dragged down by continuing weakness in the pulp and paper sector and its associated pulpwood requirements. As a group, which is getting more difficult to do because of inequities between countries in the transition process, the countries in *central and eastern Europe*, excluding the Russian Federation, showed some signs of optimism in forest products production, exports and consumption, but extreme variations exist.

The year 1996 was dismal in the *Russian Federation* as production disruptions (harvests and manufacturing) continued, export markets collapsed and domestic consumption sunk further. There were some positive indications of increased exports and consumption in some of the other CIS countries, but without any statistics there is no confirmation. Statistical reporting is difficult in most countries in transition and some analysts feel that the Russian statistics may be understating the full picture--something which could easily happen if there were unreported local consumption or exports.

Sawnwood demand, both hardwood and softwood, reached record heights in North America due to housing construction, repair and remodelling markets, nullifying the ominous threat of the Softwood Lumber Agreement between the United States and Canada which now regulates the trade. Consumption fell in Europe, especially in the first half of 1996, which was not subsequently fully made up in the second half-year. Of the major producers, only Germany succeeded in increasing production in 1996 and only Sweden succeeded in increasing exports. Despite what western Europeans described as weak markets, the Baltic Countries increased exports by 40% in 1996 and together they would be Europe's fourth largest exporter, behind Austria and ahead of Germany.

In 1996 prices rose with demand for sawnwood as did the demand and price for sawlogs in Europe (second half of the year) and North America (all year long). In some countries sawmills experienced constraints both for the supply of logs and the sales of chips due to the downturn in the pulp and paper sector (as opposed to panel manufacturing). Sawing technology now makes it possible to saw rather small logs, including some which could only have been pulped in the past.

Table 1

Apparent consumption of sawnwood, wood-based panels and paper and paperboard in Europe, the Russian Federation and North America, 1993 to 1996

	Million units	Volume				Change 1995 to 1996	
		1993	1994	1995	1996 (prelim.)	Volume	Percent
							(%)
EUROPE							
Sawnwood	m3	86.08	92.61	91.03	88.37	-2.66	-2.9
Wood-based panels	m3	39.60	40.96	44.38	43.85	-0.53	-1.2
Paper and paperboard	m.t.	68.69	72.90	72.78	71.68	-1.10	-1.5
Total	m3 EQ a/	438.86	466.15	468.60	459.73	-8.87	-1.9
Change on previous year							
- Volume			27.29	2.45			
- Percent			6.2	0.5			
RUSSIAN FEDERATION							
Sawnwood b/	m3	34.41	25.37	20.64	17.07	-3.57	-17.3
Wood-based panels c/	m3	5.58	3.63	2.94	2.07	-0.87	-29.6
Paper and paperboard	m.t.	3.27	2.53	2.47	1.61	-0.86	-34.8
Total	m3 EQ a/	76.64	56.11	47.04	36.96	-10.08	-21.4
Change on previous year							
- Volume			-20.53	-9.07			
- Percent			-26.8	-16.2			
NORTH AMERICA							
Sawnwood b/	m3	151.66	158.61	153.31	160.38	7.07	4.6
Wood-based panels c/	m3	44.26	45.74	45.21	47.28	2.07	4.6
Paper and paperboard	m.t.	87.55	91.76	96.62	95.15	-1.47	-1.5
Total	m3 EQ a/	628.57	656.76	663.30	672.93	9.63	1.5
Change on previous year							
- Volume			28.19	6.54			
- Percent			4.5	1.0			

a/ Equivalent volume of wood in the rough.
b/ Excluding sleepers.
c/ Excluding veneer sheets.

Sawn hardwood consumption continued to fall in Europe, perhaps not enjoying the demand from low grade markets for pallets and railroad ties (sleepers) in the United States where production, trade and consumption increased in 1996.

Driven by construction, *panel* consumption (all categories combined) increased in the region. Mature products like plywood and particle board are having market share eroded by OSB and MDF respectively. Capacity increases for OSB and MDF in the ECE region were phenomenal (20 to 30%) in 1996 and as high production created oversupply, prices fell. In 1997 capacity stabilized in line with limitations in demand; subsequently in Europe, MDF prices rose.

Consumption of *paper and paperboard* fell throughout the ECE region in 1996. Accordingly *pulp and paper* production slowed and stocks were run down into mid year when the production resumed and then accelerated in 1997. Pulp prices plummeted from the 1995 record of near $1000/ton to $500/ton in Spring 1996, shaking not only this sector but having serious negative consequences throughout the forest products markets. Recovered paper and paperboard use keeps expanding, but not always synchronized with market-driven supply, resulting in unstable, low prices.

The downturn in the pulp and paper markets in 1995 and continued trough into mid-1997 has had serious consequences in other sectors too. For example some forest managers have delayed cuttings for lack of pulpwood markets in both Europe and North America. Loss of demand, or at least loss of revenue from sawmill chips, has hurt some sawmills production and profits, while others have succeeded in selling chips for particle board and MDF. Recovered wood is increasingly returning as panel furnish and fuelwood, offsetting an alternative markets for pulpwood. Wood for energy use increased most in Sweden, assisted by high taxes on non-renewable fuels and in countries in transition assisted by high costs of non-renewable fuels.

Worldwide the value of trade fell in 1996 according to the FAO *Commodity Market Review, 1996-97* due to the weakened paper demand and collapse of pulp prices. Outside the ECE region, significant wood pulp capacity expansion came at an inopportune time in the pulp cycle, thereby exacerbating an already difficult period. As world roundwood supply expanded in 1996, so did its principle use as fuelwood.

Globalization of timber sources and markets continues with seemingly less and less importance of shipping distances. Often transportation of forest products is made feasible economically feasible by capitalizing on less expensive back hauls, e.g. to Japan where ships carrying automobiles from Japan, return with forest products.

Japan's high level residential housing construction of 1.6 million units in 1996 was the locomotive which drew considerable wood and wood products. Tropical sources ceded market share to temperate species, often from the ECE region and increasingly from Europe. Russian exports to Japan, mainly logs, remained at the 1995 level, while log imports from the United States, the second most important source next to tropical Asia Pacific logs, declined due to North American domestic needs.

Structural change in the Japanese forest products markets continues with less dependence on domestic timber and greater diversification of wood and fibre sources to more distant forests. Domestically manufactured sawnwood and plywood, and their required log raw materials, are being increasingly replaced by imported products of a variety of species, especially with higher percentages of softwoods and often from Japanese offshore investments. Engineered wood products, including panel products like OSB and MDF, are increasing market share for traditional solid wood applications, e.g. post and beam construction.

Although the volumes concerned are still relatively small, *Engineered wood products*, not only composite panels and combinations of different panels, but also wood I-beams, glulam beams, laminated veneer lumber and other products made from flakes, chips and fibres, are rapidly substituting for solid wood and mature panel products like plywood, thereby opening new markets, while not necessarily expanding the use of wood. More threatening to the industry, and especially to forest managers, is substitution by PVC plastic, steel, aluminum and concrete and subsequent loss of market share by wood.

Corporate *mergers* continue and forest products companies are integrating in order to assure raw materials and market access. Some mergers have created extremely large corporations which have not escaped notice of governments concerned by potential monopolies.

Attention to *sustainable forest management* (SFM) is active, not only in the ECE region, but worldwide and it is having a direct effect on forest products supply and thus indirectly on markets. Traditionally forest management has been practised on a long-term sustainable basis in most parts of the region, but now forest managers are called on to prove it.

The Timber Committee will discuss as its special topic this year at its fifty-fifth session, the markets for certified forest products. Its team of specialists on certification reported that there are a growing number of schemes (public and private) being developed worldwide although mutual acceptance of each others schemes by the marketplace is not assured. In addition the team highlighted a number of important, yet difficult issues in establishing credible certification systems, such as an accurate accounting of chain of custody. Still the team was unable to assess the market for certified forest products although they indicated that the present small market niche could grow, depending upon the availability and credibility of certified wood and wood-based products.

The market situation for certified forest products appears to be the same as reported in last year's *Review*, i.e. a few importers and vendors are requesting that their wood products be sourced from sustainably managed forests and so labelled. On a global scale, the volume of certified forest products is negligible because of lack of significant demand by consumers who will indeed pay for the additional costs incurred in providing certified forest products. Until companies succeed through effective promotion in educating consumers about certification of SFM and in creating true demand for certified forest products, the niche will remain limited, especially if certified products are not widely available.

New *trading structures and practices* are steadily changing the face of the trade, as well as the competitive positions of different groups and countries. These include:

- vertical integration (producers, exporters, importers, wholesalers, retailers);
- improved transport and distribution infrastructure;
- better information on stocks and prices, making it possible to optimise production and stock management and keep in close touch with clients;
- the introduction of EDI (Electronic Data Interchange) within and between companies and other partners (e.g. customs and other administrations, transporters etc.), considerably reducing costs, at least for those countries large enough to make the necessary initial investment);
- use of the Internet for trading in forest products, initially purely as an electronic advertising medium, but now also for direct trading;
- the establishment in 1997 of futures contracts for market pulp in Helsinki and London.

All of these will tend to reduce costs, and increase flexibility and rapidity of response to market conditions, for those companies and countries which are technically sophisticated and enterprising to benefit from them. They are certainly more widespread in the pulp and paper sector, characterised by large companies than in the sawnwood and panels sector. In some cases, smaller companies may be at a disadvantage, thus accelerating the tendency for the average size of companies in the sector to increase. As a whole, these changes should also benefit the consumer, either by improving service or by reducing costs, thus improving forest products' competitivity vis-à-vis other materials.

Forecasts for 1997 by the Timber Committee in September 1996 were for region-wide improvement in almost all forest products market sectors in 1997, although European consumption was not expected to recover to 1995 highs. In North America, despite predictions in declines in United States housing construction and the Japanese housing construction (the main offshore export market), forecasts of most products consumption and production were positive, perhaps due to continued recovery in Canadian housing and the vast repair and remodelling market. Developments in the first few months of 1997 seem approximately in accordance with these forecasts. Forecasts for the Russian Federation were all positive, indicating (or hoping) that the bottom of the transition process has been reached.

Chapter 2

ECONOMIC SITUATION OF EUROPE, CIS AND NORTH AMERICA IN 1996 AND EARLY 1997

A. Overview

Economic growth varied considerably last year throughout the ECE region: Europe, the CIS and North America. Among the market economies, growth in western Europe (1.9%) was fairly modest and less than in 1995, but it was much stronger in the United States (2.4%), and unexpectedly, stronger than in 1995. In eastern Europe a fairly high average growth rate was maintained in the CEFTA countries of central Europe (5%) and there was solid recovery in the Baltic states (3.4%). The long decline in GDP continued in Russia (-6%) but there were recoveries in many of the other members of the CIS.

Rates of *inflation* have continued to fall throughout the region. In western Europe the average rate of increase in consumer prices (2.4%) was at its lowest in 30 years. In eastern Europe rates have also continued to decline although progress is still slow in several countries and there were major setbacks in south-east Europe. There were very large drops in the inflation rates of the CIS.

There were serious *setbacks to the transition process* in south-eastern Europe last year. The most dramatic were in Albania and Bulgaria but many of the factors behind these crises are present in other countries in the region and in the CIS, and many are rooted in history and the difficult initial conditions in which these countries began to construct market economies.

The *outlook for 1997* is not radically different from the outcome of last year. In western Europe GDP growth is expected to improve moderately (to perhaps just under 2.5%), not enough to make much difference to current levels of unemployment. The outcome could possibly be weaker than forecast given the efforts being made to meet the Maastricht criteria and keep inflation at or below 2%. In the United States of America, after seven years of expansion, short-term indicators and forecasts in early 1997 were still pointing to a further slight acceleration in GDP growth to 2.5% for the year as a whole. In eastern Europe, the average growth rate is expected to slow somewhat to 3.5% in 1997 (against 4% last year). This slowdown mainly reflects developments in south-east Europe where tough stabilization programmes are expected to produce falls in GDP in Bulgaria and Romania. (Falling output in Albania also seems highly probable, with or without a stabilization programme.) Relatively high rates of growth (4-6%) are expected to be maintained in Poland, Slovakia and Slovenia; and growth should pick up in Hungary after a successful stabilization programme. The recovery in the Baltic states is also expected to continue and strengthen with growth rates in the region of 3.5% to 5%.

There was a large increase in *balance of payments* deficits in eastern Europe and the Baltic states in 1996 and a further deterioration is expected in several of these countries in 1997. Many of them now have deficits over 5% of GDP and, although for most of them finance has not been a problem, it is likely that some adjustments will eventually be made to check the growth of domestic demand.

Assessing the *short-run economic outlook for Russia* still remains extremely difficult. The government and some independent forecasters expect a modest (2%) upturn in output in 1997 but there are still many Russian economists who think that even zero growth – i.e. bringing the seven-year decline to an end – might be the best to hope for. Much depends on whether the problem of arrears can be dealt with in a non-inflationary way. In Ukraine, the economy is still in deep depression but it could at least bottom out in 1997, although the government hopes for growth of 1.7%. In the other CIS member countries the recovery seen in many of them last year is expected to continue, even if some governments' growth targets appear rather ambitious.

B. Western Europe and North America

(i) Developments in 1996

Table 2
Annual changes in real GDP in the ECE market economies, 1994 to 1997
(percentage change over previous year)

	1994	1995	1996	1997[a]
Western Europe	2.5	2.6	1.9	2.4
4 major countries	2.9	2.3	1.4	2.1
France	2.8	2.2	1.3	2.2
Germany	2.9	1.9	1.4	2.2
Italy	2.1	3.0	0.7	1.2
United Kingdom	3.8	2.5	2.1	3.0
17 smaller countries[b]	1.7	3.2	2.8	2.9
Austria	3.0	1.8	0.8	1.2
Belgium	2.3	1.9	1.4	2.1
Cyprus	6.1	5.3	2.4	3.5
Denmark	4.4	2.8	2.2	2.9
Finland	4.5	4.5	3.2	3.5
Greece	1.5	2.0	2.2	2.5
Iceland	3.5	2.1	5.4	3.3
Ireland	6.5	10.3	6.3	5.5
Israel	6.8	7.1	3.8	4.0
Luxembourg	4.2	3.7	2.4	3.1
Malta	4.0	9.0	4.0	4.0
Netherlands	3.4	2.1	2.7	2.8
Norway	5.0	3.3	4.8	3.1
Portugal	0.8	2.4	2.6	2.9
Spain	2.1	2.8	2.3	3.0
Sweden	3.3	3.6	1.1	2.0
Switzerland	1.0	0.1	-0.7	0.5
Turkey	-5.5	7.3	7.5	5.0
North America	3.5	2.1	2.4	2.6
Canada	4.1	2.3	1.5	3.3
United States	3.5	2.0	2.4	2.5
Total above	3.0	2.3	2.1	2.5
Memorandum item:				
Japan	0.5	0.9	3.7	1.6
Total above, *including Japan*	2.6	2.1	2.3	2.3

Source: National statistics; UN/ECE secretariat estimates.

[a] Forecasts.

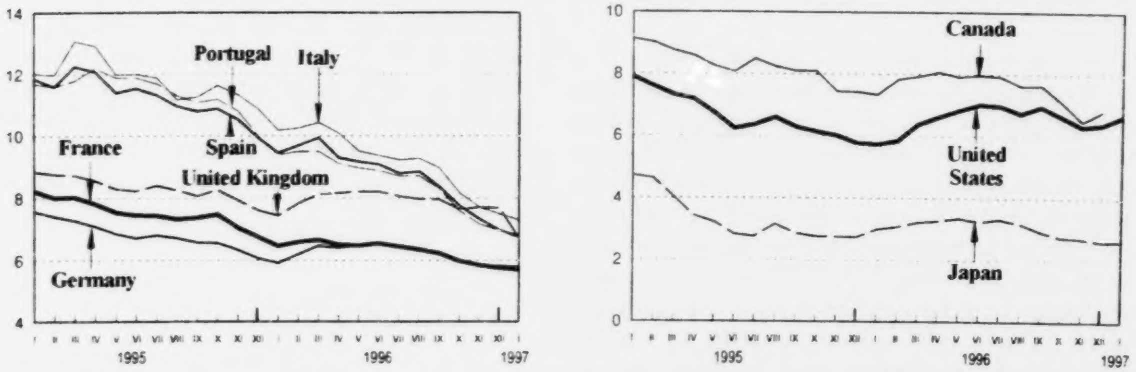
[b] Excluding Israel.

Economic growth in western Europe strengthened during the course of 1996, but, for the year as a whole, the average rate of increase of just under 2% was still much lower than that in 1995 (table 2 and graph 1). Of the four large European economies, only the United Kingdom, which has been cyclically detached from mainland Europe since 1993, maintained a significant rate of expansion, although growth in many of the smaller economies was some way above the west European average. The average growth rate in 1996 masks a wide variation in the economic performance of individual countries. Among the four major economies, there was modest growth (1.5% and less) in 1996 in France, Germany and Italy, while real GDP rose by about 2% in the United Kingdom. Among the 18 smaller economies, growth was 1.5% or less only in Austria, Belgium, Sweden and Switzerland. In fact, in the latter country real GDP actually fell in 1996. All the other countries grew at rates of at least 2% and, in some cases, significantly more.

Although most of the data are still provisional, the recovery in continental Europe appears to have lost momentum in the last quarter of 1996 while in the United Kingdom there was an acceleration in the closing months of the year.

The main source of west European growth last year was *rising exports*, mainly to regions outside western Europe such as the United States, the transition countries of eastern Europe, and the developing countries. Many countries benefited from the

Graph 1
Nominal long-term interest rates in selected industrial countries, January 1995 to January 1996
(Per cent per annum)



Source: Banque de France, *Bulletin de la Banque de France*, various issues and direct communications; Portugal: OECD, *Main Economic Indicators* (Paris), various issues.

Note: Average monthly yields on 10-year government bonds.

competitive advantages resulting from the appreciation of the dollar and the stronger growth of demand in countries such as the United States. But the impulse from net exports was not strong enough to give a significant boost to total demand. In general *private consumption expenditure* in western Europe rose slightly more than 2%, not much more than in 1995 and still restrained by modest growth in wages and salaries and in employment. Government consumption expenditure increased very little (1.4% on average, the only large increase among the larger economies being in Germany) as a result of the continuing efforts to meet the Maastricht criteria for entry into the EMU.

As part of the same efforts at fiscal retrenchment, *fixed investment* by governments actually fell quite sharply in a number of countries and for the second year in succession in France, Germany and the United Kingdom. Business fixed investment showed little buoyancy and investment plans were cut back during the year as a response to expectations of relatively weak output growth. What investment did take place appears to have been focused more on rationalization rather than expanding capacity. The total volume of fixed investment rose by just 2% in 1996 and was only 2.5% higher than in 1990 (only 1% if Turkey is excluded). The weak performance of fixed investment is a matter of some concern as it implies some slipping behind in the rate of technological progress in the west European economy and, ultimately, a slowdown in the creation of new jobs. Since costs of capital have fallen and rates of return have risen, the main restraint on investment would appear to be the weak prospects for economic growth.

In sharp contrast to western Europe, the *United States economy* continued to expand for the sixth successive year (the present upswing began in early 1991). Growth actually strengthened through the year and for 1996 was about 2.5% higher than in 1995. The expansion was broadly based but rising employment, higher real incomes, and rising consumer confidence meant that households' expenditure (up 2.5%) was the main support. Nevertheless, business investment also rose strongly, encouraged by high capacity utilization, rising profits and confident expectations of continued growth. In contrast to western Europe, American business was also expanding productive capacities as well as spending heavily on new technology. Strong domestic demand in the United States also gave a boost to the world economy in 1996, imports of goods and services rising nearly 6.5% and creating a slight net drag on the domestic growth rate.

In many ways the performance of the *Canadian economy* last year was closer to that of western Europe than the United States: annual growth averaged some 1.5%, rather less than in 1995; relatively weak labour markets and increased taxes held back the growth of personal disposable income, although consumption picked up to a large extent because of a steep fall in the savings ratio; and business fixed investment is also more concerned with rationalization rather than expanding capacities.

Inflation rates are low in both western Europe and North America. Despite the tighter labour markets and strong consumer demand in the United States and the United Kingdom, inflation rates in both countries remain subdued and there were only sporadic signs of incipient inflationary pressures, although in late March 1997 the Federal Reserve considered that these were sufficient to justify a small increase in the federal funds rate. In continental Europe, inflation rates have continued to decelerate and this development led to an easing of monetary policy in a number of countries; subsequent expectations about the likely movement of interest rates in favour of United States and United Kingdom assets strengthened the dollar and the pound sterling against the continental currencies during much of the year, improving the export competitiveness of the continental economies. European rates of consumer price inflation continued to fall through most of 1996 and the average rate for the year as a whole was just under 2.5%, its lowest rate in more than 30 years. Little change is expected in average rates of inflation in the near future: some slight increases might occur in the United States and the United Kingdom, but in the rest of Europe, if anything, a further deceleration would seem more likely than a rise.

Low rates – and weak expectations – of economic growth in western Europe have meant there was virtually no increase in the average level of *employment*. There was some creation of new jobs in the United Kingdom, especially in the second half of the year, and in some of the smaller economies, but in general the increases were less than in 1995. Most of the new jobs that were created were in services. But whereas in Europe the numbers in employment increased by just 0.3% on average, in the United States job creation was still robust, rising by 1.4% despite still larger increases in the previous three years.

Weak output and employment growth in western Europe mean that little progress has been made in reducing the persistently high rates of unemployment throughout the region. The average rate in 1996 was 10.3%, somewhat higher than in 1995 and about the same as in 1993. Among the four large economies it varied in 1996 from 8.2% in the United Kingdom, the only one of the four where the rate fell, to 12.3% in France. There were a few small reductions in some of the smaller economies where unemployment rates ranged from 3% in Luxembourg to over 20% in Spain.

Despite the considerable deregulation of European labour markets in recent years, the weakness of demand and output growth continue to hold back any significant reduction in unemployment. The major exception to this is the United Kingdom where output has grown relatively strongly since early 1993. However, the prospects for any significant reduction in European unemployment are still rather poor. The stance of economic policy is dominated by concerns to meet the Maastricht criteria for general government budget deficits and this implies tight fiscal policies in the coming year. Although monetary policy was loosened somewhat in 1996, it can still be expected to be kept relatively tight given the ambitious targets for inflation now being set, as shown by the Bundesbank's decision to lower its target rate to a range of 1.5-2%. It may therefore still be some time before west European growth can rise again to rates that would bring about a significant reduction in unemployment.

Financial markets throughout the market economies continued to rise against a background of falling short-term interest rates, low inflation rates and moderate inflationary expectations. Despite the warnings of the chairman of the United States Federal Reserve against "irrational exuberance", there was a considerable surge in share prices, in many countries to record levels.

In western Europe, these developments contrasted sharply with moderate output growth and the bleak situation in the labour markets. The spending and production decisions of economic agents are mainly determined by expectations concerning future incomes, profits and sales. These expectations are also shaped by the regularly published forecasts of economic growth by various national and international institutions.

Although output growth rates converged between western Europe and the United States in the third quarter of 1996, the significant *difference in their cyclical positions* should be emphasized. The United States is on the plateau of a long cyclical upswing whereas in many west European countries, notably France, Germany and Italy, cyclical growth forces remain weak and a sustained upswing is not yet in sight.

Economic activity continued to rise strongly in the *developing countries* as a group in 1996 reflecting, inter alia, continuing robust growth in Asia and a significant rebound in Latin America.

In the transition countries there was a further fall in aggregate output levels in 1996 but the underlying performance in the main subgroups is quite diverse (see below). In the event, *world output growth* accelerated slightly in 1996 compared with 1995.

Despite this slight acceleration in world output growth, there was a marked slowdown in the volume growth of world *merchandise trade* in 1996. For the year as a whole, it increased by some 4.5% compared with 1995, when it rose by about 8.5%. There was a pervasive weakening in import demand, which was quite pronounced in western Europe, Japan and also the developing countries of Asia. There was also a slowdown in the growth of import demand originating in the transition economies in 1996, but the average increase of more than 10% exceeded by far the average growth of world trade. The bulk of this demand was addressed to west European countries and has accordingly helped to provide some support to higher activity levels in those economies.

For the year as a whole, the level of west European *industrial output* was broadly unchanged compared with 1995. Activity in the *construction* sector was generally depressed, reflecting weak residential investment, a reluctance of firms to engage in capacity augmenting expenditures (which are normally associated with construction projects), and tight government budgets which restrained infrastructure investment.

Residential investment was restrained by unfavourable income and employment prospects and, in some countries, by high vacancy rates of dwellings, which depress actual and prospective rates of return. Furthermore, the continuing effort to consolidate budget deficits has left little scope, if any, for increased government investment. Construction investment fell in Austria, France, Germany and Switzerland in 1996; in contrast there was rather strong growth in Denmark, Ireland and Portugal. In many countries, new house building has been held back by stagnant prices and a stock overhang, corporate investment in construction has been very sluggish, and fiscal restraint has led to a decline in government investment in infrastructure.

In *Japan*, the stimulus to fixed investment from the September 1995 fiscal package and the reconstruction programmes related to the Kobe earthquake waned after the first quarter of 1996, when there was an exceptionally strong rebound of economic activity. The priority of fiscal policy shifted towards budget consolidation against the backdrop of a significant deterioration in public finances. Economic activity broadly stagnated in the second and third quarters of 1996 mainly reflecting the weakness of domestic demand. But there was a significant acceleration in economic activity in the final quarter of 1996. Exports, which had already picked up in the third quarter, strengthened considerably in the final quarter, benefiting from the recovery in world trade and the depreciation of the yen, and this supported industrial activity. In addition, the announced increase in the sales tax as from April 1997 appears to have stimulated households to bring forward purchases of cars and houses. This led to a significant rise in private consumption in the final quarter of 1996 following declines in the two preceding quarters. In the event, real GDP rose by 3.7% in 1996, the highest annual increase among the industrialized countries, but this greatly exaggerates the underlying momentum of the economic recovery.

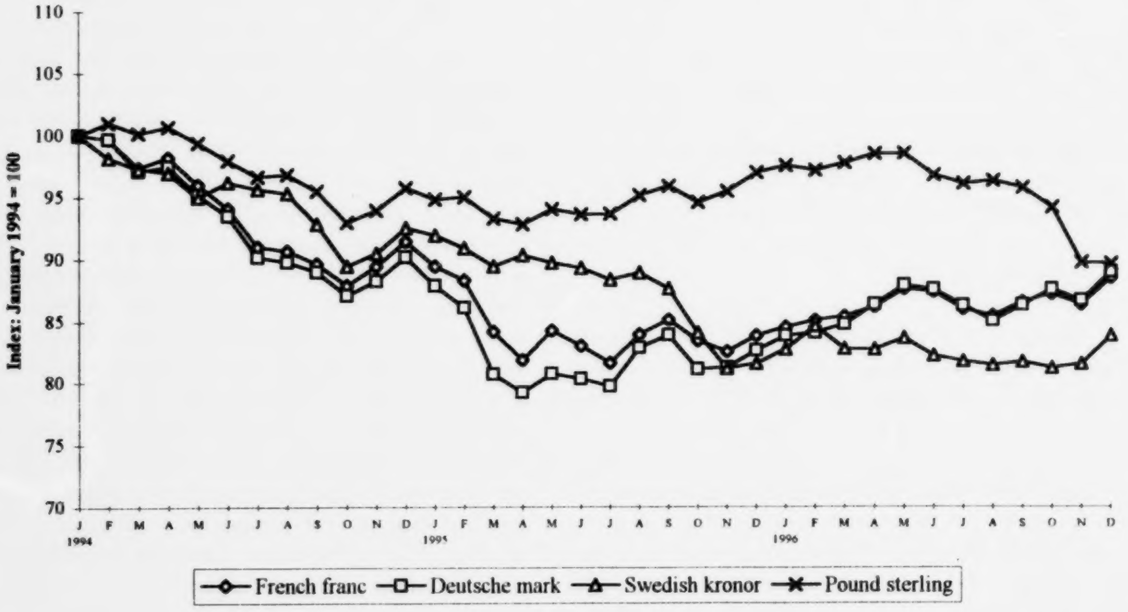
In the United States, the customary merchandise trade deficit rose to a record level of $187.2 billion in 1996 against the backdrop of robust domestic demand and a significant appreciation of the dollar. (There has been a deficit on the merchandise trade account in every year since 1976.) The trade balance continued to improve markedly in Canada, while in Japan there was a large fall in the trade surplus.

The average *price of raw materials* in dollar terms on world markets moved sharply upwards during 1996, heavily influenced by increases in the price of crude oil, and masking the continuing downward trend in the prices of non-energy raw materials underway since mid-1995. The HWWA index of industrial raw materials prices fell by some 11% in 1996 compared with 1995, a reflection in part, of sluggish industrial output growth, particularly in western Europe. (Produced by the Institute for Economic Research, Hamburg (HWWA), this index weights world market prices (in dollars) by the relevant commodity shares in total imports of the western industrialized countries in 1974 to 1976.) There was a steep decrease in the first half of the year which levelled off in the remaining months.

On the *currency* markets, there was a sizeable appreciation of the dollar against the deutsche mark and other west European currencies as well as the yen in the course of 1996, a development which continued in early 1997 (graphs 2 and 3).

Graph 2

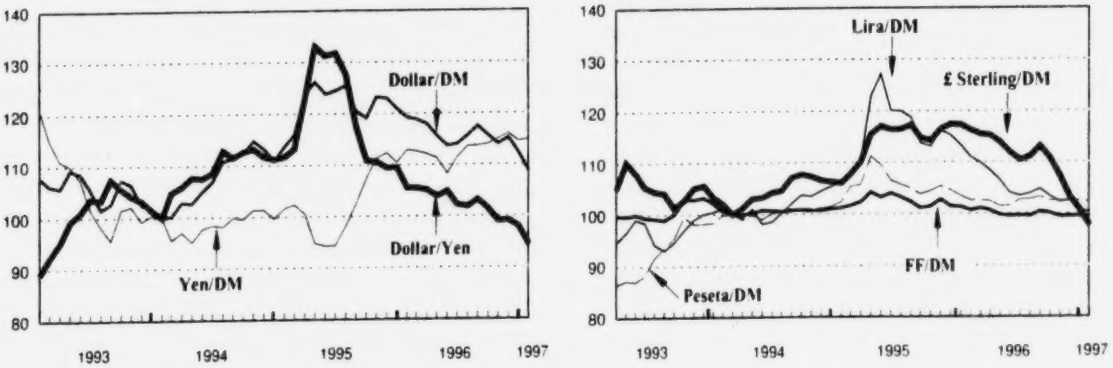
Exchange rates of selected currencies against the United States dollar



Graph 3

Average monthly bilateral exchange rates, January 1993 to January 1997

(Indices, January 1994 = 100)



Source: Deutsche Bundesbank, *Monatsbericht* (Frankfurt am Main), various issues.

Among the factors supporting the United States currency were the expected widening of interest rate differentials in favour of dollar-denominated assets, the considerable surge in United States equity prices, and a perception that a stronger dollar was not unwelcome by policy makers in both western Europe and Japan, as this would tend to strengthen their net export growth. Nevertheless, at the meeting of the Group of Seven (G7) Finance Ministers in Berlin at the beginning of February 1997 governments signalled that they would consider a further strengthening of the dollar and a continuation of the weakening of the deutsche mark and the yen undesirable. But the upward pressure on the dollar persisted in February.

Among the west European currencies there was a striking appreciation of the Italian lira in 1996, driven mainly by progress in curbing inflation and the above-mentioned convergence trading. There was also a strong appreciation of the pound sterling against the deutsche mark and the French franc, an appreciation which accelerated in the final months of 1996.

(ii) Outlook for 1997

There is a broad consensus that the moderate recovery which gradually unfolded in *western Europe* in the course of 1996 will continue in 1997. According to forecasts made at the turn of the year, real GDP will increase by about 2.25-2.5% in 1997. Such forecasts imply that there will be no significant rebound in economic growth in the course of 1997 and that there will be hardly any significant improvement in the labour markets. Unemployment is set to remain high and broadly unchanged from its level in 1996. With considerable slack in the labour markets, ample margins of spare capacity and continuing wage restraint, expectations of inflation will remain at the very low levels attained in 1996. The zeal to keep inflation low (that is, at some 1.5-2.0%) will be accentuated by the efforts of monetary authorities to meet the Maastricht inflation criterion.

Export growth is likely to accelerate somewhat in 1997 and foreign demand should still be the mainstay of higher activity levels in 1997. To some degree this reflects the effect of improved price competitiveness due to the significant appreciation of the dollar. Export demand originating in the transition economies is expected to continue growing strongly in 1997. But there is also a revival of intraregional trade flows, which is mirrored in a concomitant strengthening of import growth. Changes in real net exports are therefore likely to be broadly neutral in their effect on aggregate output levels in 1997. There is likely to be only a moderate strengthening of domestic demand growth, reflecting a slight upturn in fixed investment and favourable changes in inventory accumulation. Fixed investment appears to be mainly restrained by the presence of ample margins of spare capacity and lingering uncertainty about the strength and sustainability of the recovery. Private consumption will probably continue to be rather sluggish and for the year as a whole the same growth rate as in 1996 (slightly more than 2%) is forecast, which mainly reflects moderate strengthening in the course of the year. The persistent weakness of consumer demand is largely the result of weak growth in aggregate real incomes, which, in turn, reflects moderate gains in employment and wage incomes. Growth of government consumption expenditure will be dampened by ongoing fiscal retrenchment.

In the *United States*, the economic expansion has now entered its seventh year. Short-term indicators point to continuing robust growth in the early months of 1997, with private consumption being the major driving force. The renewed momentum of the economy has led to an upgrading of the growth forecasts prepared at the turn of the year. Instead of a slight slowdown, most of the recent forecasts point to a broadly unchanged rate of growth or even a moderate acceleration. Real GDP is expected to rise by some 2.5-2.75% in 1997, which is somewhat higher than the estimated growth of potential output. Thus, the United States economy will remain a major driving force behind the increase in international economic activity in 1997. Inflationary pressures have remained low, despite the prolonged length of the current expansion, and expectations are for a broadly unchanged rate of inflation in 1997. The labour market will remain tight, but there are as yet no indications of significant increases in labour cost pressures.

In *Japan*, forecasts are for a marked slowdown in the rate of economic growth in 1997, following a significant rebound in 1996. This deceleration mainly reflects the shift towards restrictive fiscal policy, which will dampen public investment expenditures, while higher sales taxes will restrain private consumption growth. Some offset will be provided by exports, which will be supported by the sizeable depreciation of the yen. Real GDP in Japan is currently expected to increase only by about 1.5% in 1997.

World output growth is also expected to remain more or less unchanged in 1997. The developing countries should continue to maintain a rate of growth significantly higher than that of the industrialized countries, but a major acceleration is not expected.

C. Countries in transition

(i) Developments in 1996

The year 1996 was a difficult one for the ECE transition economies but, on balance, positive developments and changes prevailed (table 3). The process of economic transformation deepened and strengthened in the core group of fast reforming central European countries, although on average their rate of economic growth slowed down as compared with 1995. Growth was 6% in Poland, 7% in Slovakia and 4.4% in the Czech Republic. Another positive feature was the expansion of the group of countries which may be considered "fast reformers": developments in 1996 suggest that the Baltic states have also joined this category, with growth rates between 2.5% and 4.4%. There was also better performance in some of the CIS countries suggesting that the transformational recession may be coming to an end in this region. There was substantial progress in macroeconomic stabilization in the Russian Federation and Ukraine, but the long awaited return to recovery and growth did not materialize.

The most disturbing developments occurred in south-eastern Europe where Albania and Bulgaria were hit by serious crises; signs of instability and lack of progress in transformational reforms were obvious also in other countries in this region as well as in some of the CIS countries. The economy of Bosnia and Herzegovina was extremely badly damaged by the war and the process of reconstruction has been very slow. One year after the Dayton Accord the economy was still barely functioning (according to some rough estimates, despite the recorded growth, industrial output in 1996 was still at some 10-15% of its pre-war level) and the population relied almost exclusively on international assistance.

Economic growth in eastern Europe as a whole decelerated in 1996 to 4%, down from 5.6% in 1995. Although a slowdown occurred in a number of countries, the decline in the average growth rate was largely due to the unexpected and deep crisis in Bulgaria where GDP dropped by 10% in 1996. Growth in the Hungarian economy was also weak, below the rate in 1995 and well below earlier forecasts. Economic growth in Slovenia also continued to slow down in 1996 despite earlier forecasts of an acceleration: an important reason for this was the weakness of industrial production which was affected by the weaker demand abroad for exports.

In the other countries of south-east Europe (Albania apart) output increased (for the first time in The former Yugoslav Republic of Macedonia since 1989) but generally by much less than was forecast – or in some cases, hoped for – at the start of the year. The Croatian economy is still suffering from the economic effects of the war and the breakup of ties with the other countries of the former SFR of Yugoslavia. The Yugoslav economy started to grow after economic sanctions had been lifted but, given the low level to which activity had fallen, the recovery has been very slow and far below the government's expectations.

Table 3
Basic data on the transition economies, 1994 to 1996
(Rates of change and shares, per cent)

	GDP (growth rates)			*Industrial output (growth rates)*			*Inflation (per cent change, Dec./Dec.)*			*Unemployment rate (per cent)*			*Trade balance (per cent of GDP)*		
	1994	*1995*	*1996*	*1994*	*1995*	*1996*	*1994*	*1995*	*1996*	*1994*	*1995*	*1996*	*1994*	*1995*	*1996*
Eastern Europe	3.9	5.6	4.0	6.7	7.6	7.2	..	..	..	13.6	12.5	11.8	-4.5	-6.5	-9.7
Albania	9.4	8.6	..	-18.6	-7.2	..	15.0	6.0	..	18.0	13.1	12.1	-23.3	-18.3	-26.7
Bosnia and Herzegovina	..	..	..	..	..	60.0[a]	94.7	-34.2	3.2	..	..	..	..	..	..
Bulgaria	1.8	2.1	-10.0*	8.5	5.4	-1.0	122.0	33.0	311.1	12.8	11.1	12.5	-2.1	-2.3	2.0
Croatia	0.6	1.7	4.4*	-2.7	0.3	3.1	-3.0	3.7	3.4	17.3	17.6	15.9	-6.7	-15.8	-17.6
Czech Republic	2.6	4.8	4.4	2.1	9.2	6.8	10.3	8.0	8.7	3.2	2.9	3.5	-2.0	-7.7	-11.5
Hungary	2.9	1.5	0.5*	9.5	4.6	3.3	21.3	28.5	20.0	10.4	10.4	10.5	-9.3	-5.9	-6.9
Poland	5.2	7.0	6.0	11.9	9.4	9.1	29.4	22.0	18.7	16.0	14.9	13.6	-4.7	-5.2	-9.6
Romania	3.9	7.1	4.1	3.3	9.4	9.8	61.9	27.7	56.8	10.9	9.5	6.3	-3.2	-6.6	-6.5
Slovakia	4.9	6.8	6.9	4.6	8.2	2.5	11.8	7.4	5.5	14.8	13.1	12.8	0.1	-1.9	-11.1
Slovenia	5.3	3.9	3.5*	6.4	2.0	1.0	18.3	8.6	8.8	14.2	14.5	14.4	-3.3	-6.3	-5.9
The FYR of Macedonia[b]	-7.2	-2.9	1.6	-10.6	-9.8	3.2	55.1	11.2	0.2	33.2	37.2	39.8	-14.4	-14.4	-22.6
Yugoslavia[b]	2.5	6.0	4.3*	1.2	3.8	6.8	8E+09	110.7	59.9	23.9	24.7	26.1	..	-8.0	-15.3
Baltic states	-0.2	1.4	3.4	-15.7	0.6	1.7	..	..	..	5.3	6.5	6.4	-9.1	-15.4	-18.6
Estonia	-2.7	2.9	3.5*	-2.0	1.9	1.1	41.8	28.8	14.9	5.1	5.0	5.6	-15.2	-19.4	-26.4
Latvia	0.6	-1.6	2.5*	-6.8	-6.3	0.7	26.1	23.3	13.2	6.5	6.6	7.2	-6.9	-11.5	-17.2
Lithuania	1.0	3.0	4.0*	-28.0	6.2	2.8	45.0	35.5	13.1	4.5	7.3	6.2	-7.6	-15.8	-15.2
CIS	-14.5	-5.7	-5.3	-21.5	-5.8	-3.4	..	..	..	4.4	5.5	6.4	7.4	7.4	6.4
Armenia	5.4	6.9	4.0	5.3	2.4	1.0	1 762.7	32.0	5.6	6.0	8.1	9.7	-20.0	-18.3	-23.2
Azerbaijan	-19.7	-12.0	1.0	-22.7	-17.2	-6.7	1 786.8	84.5	6.8	0.9	1.1	1.1	4.4	-4.6	-10.2
Belarus	-12.6	-10.0	3.0	-17.1	-11.7	3.2	1 957.3	244.2	39.1	2.1	2.7	4.0	1.1	-1.1	-4.0
Georgia	-30.0	2.4	11.0	-39.7	-9.8	7.7	9 197.5	57.4	12.6	3.8	3.4	3.2	-1.0	-8.2	-8.2
Kazakstan	-18.8	-8.9	0.5	-28.1	-8.2	0.3	1 156.8	60.4	28.6	1.0	2.1	4.1	-0.2	7.0	7.7
Kyrgyzstan	-20.1	-5.4	6.0	-28.0	-17.8	10.8	87.2	31.9	35.0	0.8	3.0	4.5	0.8	-1.9	-16.7
Republic of Moldova	-31.2	-3.0	-8.0	-27.7	-3.9	-8.5	104.6	23.8	15.1	1.0	1.4	1.5	-1.6	0.5	-10.1
Russian Federation	-12.7	-4.2	-6.0	-20.9	-3.3	-5.0	214.8	131.4	21.8	7.1	8.9	9.3	8.9	8.5	8.5
Tajikistan	-12.7	-12.4	-17.0	-25.4	-5.1	-19.8	1.1	2 382.2	40.6	1.8	1.8	2.4	0.3	29.2	15.7
Turkmenistan[c]	-18.0	-16.0	–	-24.7	-6.4	17.9	..	..	..	..	..	..	-7.7	11.1	-12.9
Ukraine	-22.9	-11.8	-10.0	-27.3	-12.0	-5.1	401.1	181.7	39.7	0.3	0.6	1.5	4.6	3.8	-3.0
Uzbekistan	-5.2	-1.2	2.0	1.6	0.1	6.0	1 281.4	144.1	..	0.3	0.3	0.4	-3.6	0.8	-2.1
Total above	-8.5	-1.6	-1.6	-14.7	-1.7	0.2	..	..	..	6.9	7.5	7.9	2.0	1.2	-0.2
Memorandum items:															
CETE-5	4.5	5.7	5.0	9.3	8.4	7.3	..	..	..	12.8	12.0	11.3	..	..	..
SETE-7	2.8	5.2	1.8	1.1	5.8	7.0	..	..	..	14.6	13.7	12.5	..	..	..
Ex-GDR *Länder*	9.9	5.3	2.0	13.9	5.8	4.3	3.5	2.6	1.6	13.5	14.9	15.9	..	..	..

Source: National statistics and direct communications from national statistical offices to UN/ECE secretariat (IMF and World Bank data for Albania).

Note: Aggregates are UN/ECE secretariat computations, based on previous period weights at 1992 prices and some estimates for missing components. Output measures are in real terms (at constant prices). *Industrial output* refers to gross output, not the contribution of industry to GDP. The *inflation* measure is the consumer price index except for some countries where retail prices are used (see table 3.4.1). *Unemployment* refers generally to registered unemployment at the end of the period, but to the ILO measure for Russia and some other variants elsewhere (see table 3.3.2). The *trade balance/GDP* relation refers to merchandise trade (in dollars) and GDP converted at current exchange rates; for the CIS countries it does not cover intra-CIS trade (see table 3.1.4). Aggregates shown are: *Eastern Europe* (the 12 countries below that line), with sub-aggregates *CETE-5* (central European transition economies: Czech Republic, Hungary, Poland, Slovakia, Slovenia) and *SETE-7* (south European transition economies: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Romania, The FYR of Macedonia and Yugoslavia); *Baltic states* (Estonia, Latvia, Lithuania); *CIS* (12 member countries of the Commonwealth of Independent States); and *total transition countries*.

[a] Unweighted average of public sector output growth reported by the Statistical Office of the Federation for areas under government control (87 per cent, full year) and that of Republika Srpska (34 per cent, January-October).

[b] Gross material product instead of GDP.

[c] Net material product instead of GDP.

The diverging economic trends which emerged in the *CIS countries* in 1995 continued in 1996. On average, economic performance in the CIS region improved in 1996: in seven countries there was positive GDP growth compared with just two in 1995, but this was concentrated mainly in the smaller CIS countries. Counter to hopes and some expectations, output in the two largest economies – the Russian Federation and Ukraine – did not begin to recover in 1996. Moreover, in Russia the decline in GDP (6%) was even larger than in 1995. Considering the high level of dependence of the other CIS economies on Russia, this continued slump undoubtedly affected their economic performance. Nevertheless, there were encouraging signs of recovery, or near recovery, in an increasing number of CIS countries and these may indicate that the end of the transition recession in the CIS may be approaching.

In many east European countries, *construction* rose strongly in 1996, although there were sharp falls in Bulgaria, Lithuania and Yugoslavia (table 4).

One consequence of the slowdown in east European growth was that the hesitant improvement in the level of *employment* during 1995 came to a halt in the first three quarters of 1996. The presence of a large pool of long-term unemployed, many of them young people, is a potential source of social instability. In the short run, active labour market policies and reasonably effective social safety nets can provide some temporary relief, but effective solutions depend on a sustained revival of fixed investment.

Rates of *inflation* generally continued to fall in 1996 with particularly marked improvements in the Baltic states, in Russia and all of the other members of the CIS except Kyrgyzstan. In eastern Europe, however, progress was less striking and less general than in 1995.

In the 1980s most of the countries of eastern Europe and the former Soviet Union were in surplus for most of the time on their *merchandise trade*.

Table 4
Gross output of construction in the transition countries, 1991 to 1996
(Annual percentage change)

	1991	1992	1993	1994	1995	1996
Albania	..	..	..	..	..	..
Bulgaria	-59.3	1.5	-10.5	-6.7	2.5	-18.0[a]
Croatia[b]	-25.0	-32.0	-11.0	-5.0	-4.0	9.0
Czech Republic	-27.5	19.7	-7.5	7.5	8.5	4.8
Hungary	-12.6	1.5	2.6	12.4	-17.6	-1.1
Poland	11.4	6.6	8.0	0.5	8.1	6.4
Romania	-26.5	4.6	11.5	29.0	13.2	7.0
Slovakia	-30.5	6.2	-32.3	-6.8	2.5	3.7
Slovenia	-25.7	-11.7	-18.2	-0.1	0.9	-2.5
The FYR of Macedonia[b]	..	5.1	-5.8	-10.6	-2.3	5.1[a]
Yugoslavia[b]	-9.2	-21.6	-24.4	-10.9	-2.0	-10.0[a]
Estonia	..	..	20.3	-4.2	4.0	19.2[c]
Latvia	-43.8	-50.3	-49.5	11.6	16.5	1.0[a]
Lithuania	..	..	-38.9	0.9	-0.9	-33.5[a]
Armenia	-35.0	-92.0	-24.0	35.0	..	..
Azerbaijan	-14.0	-30.0	-27.0	-36.0	-43.0	..
Belarus	4.0	-29.0	-15.0	-11.0	-31.0	..
Georgia	-62.0	-68.0	-54.0	-14.0	-3.0	..
Kazakstan	0.5	-47.0	-39.0	-15.0	-37.0	..
Kyrgyzstan	-13.0	-35.0	-31.0	-42.0	..	..
Republic of Moldova	-9.0	-26.0	-44.0	-51.0	-17.0	..
Russian Federation	-2.0	-36.0	-8.0	-24.0	-9.0	-11.0
Tajikistan	..	..	..	..	..	..
Turkmenistan	11.0	20.0	45.0	..	..	..
Ukraine	-8.0	-37.0	-10.0	-23.0	-35.0	-36.0[a]
Uzbekistan	5.0	-32.0	-5.0	-22.0	4.0	..

Source: National statistics and direct communications from national statistical offices to UN/ECE secretariat.

[a] January-September.

[b] Construction, effective working time.

[c] Half year.

But from 1990 more and more of them moved into deficit as trade liberalization and the transformation process got underway and by 1995 all the east European and Baltic states were in deficit. In contrast, about half of the CIS countries were still in surplus, the outstanding case being Russia with a large and rising surplus.

In 1996 trade deficits deteriorated quite considerably in most of eastern Europe and the Baltic states and in most cases at an accelerating rate in the second half of the year – they doubled in Poland and Yugoslavia, sextupled in Slovakia, and elsewhere increases of 50-70% were common. The main exceptions to this development were a few countries where domestic adjustments forced a reduction in imports (Bulgaria, where imports fell over 20%, and to a lesser extent Romania and Slovenia). Altogether the aggregate of east European and Baltic trade deficits increased from $23.6 billion in 1995 to just over $37 billion in 1996.

Most of the CIS countries also moved into deficit although on a much smaller scale than eastern Europe: except for Ukraine, most of the deficits were less than $1 billion. But all of them were dwarfed by another increase in the Russian surplus, from $31 billion in 1995 to over $37 billion: or 9% of GDP, in 1996. (Allowing for unrecorded trade, however, the Russian surplus is estimated at some $29 billion in 1996.)

There were two principal factors behind the worsening of external balances in the east European countries. On the one hand, rising import demand is a natural component of the process of economic recovery and reconstruction which is underway in the region and in such circumstances it is not unusual to observe growth rates of imports exceeding those of exports and trade deficits increasing. At the same time, the strong import surge and the slowing down of export growth also reflect a persistent real appreciation of the foreign exchange rates of most east European and Baltic countries.

(ii) Short-term outlook

The outlook for 1997 is generally considered to be quite uncertain in the transition economies, but it is also widely differentiated.

In eastern Europe, there is an almost inverse relation between growth performance in 1996 and the expectations for 1997: an upswing is anticipated where growth was relatively weak, whereas in countries with strong (but in some instances weakly based) growth a slowing – or even a contraction, as in Romania, for special reasons – is expected. In the more advanced east European transition countries, a moderate slowing of growth is foreseen by most observers in the *Czech Republic*, *Poland* and *Slovakia*, whereas in *Hungary*, which has gone through a severe macroeconomic restructuring manoeuvre since early 1995, a pay-off in resumed if moderate growth seems to have begun in the last quarter of 1996 and is expected to continue; a similar pick-up is also expected in *Slovenia*. Aggregate GDP growth for this group could reach some 4.5%, slightly down from the 5% registered in 1996. Continued growth of investment demand is seen as the main driving force of domestic demand in all countries, but in the Czech Republic, Poland and Slovakia private consumption spending also continues to rise. The impact of this on growing external deficits, and in some countries the rapid growth of real wages ahead of productivity gains, are areas of concern. In Hungary and Poland, further reduction of inflation is targeted by the governments, but nonetheless it is expected to remain in double digits.

In the south European transition countries, only *Croatia* appears clearly headed for stronger growth in 1997, with a further substantial contribution expected from the resumption of tourism; and subject to the significant condition of favourable political developments, there could also be continued recovery from the depressed levels of activity due to the Balkan conflict in *Bosnia and Herzegovina*, *The FYR of Macedonia* and *Yugoslavia*, perhaps even accelerated growth. (However, for these last three countries, but especially for the first, the lack of data still precludes meaningful analysis.) In contrast, substantial falls in GDP are expected in *Bulgaria* and *Romania*, and these could possibly turn out to be more significant than is currently officially anticipated. In both countries the falls reflect very strong macroeconomic adjustment and restructuring programmes, the full dimensions of which are not yet completely clear. Falling GDP is also likely in *Albania* (although, as above, the information gap permits only guesses), but under much less policy controlled conditions and hence with less favourable implications for the medium-term outlook. A very approximative estimate is that GDP growth for this group of countries in the aggregate is likely to be close to zero if not negative. Inflation is certain to be sharply higher than in 1996 in Albania, Bulgaria and Romania (in Romania as a result of a radical freeing of prices at the beginning of the year) – and probably Yugoslavia as well – and unemployment rates are also expected to rise steeply.

In the Baltic states, after the solid pick-up in 1996, some acceleration of growth is expected in all three countries, although with rates in the 3.5-5% range they are still not up to the pace seen in the central group of eastern Europe in the recovery phase.

Among the CIS countries, *Ukraine* apparently is still not at the turn around point for GDP growth even on government assumptions. In *Russia*, the government (and some outside observers) expect a modest upturn finally to occur in 1997, but this is still widely doubted by economic analysts in the country who, on average, would seem to see a standstill as an achievement. Much depends on the course of policy, in particular whether the problems of financial and fiscal arrears, which are at the origin of the weakness of domestic demand, can be successfully tackled without leading to another outbreak of inflation. In both countries unemployment is likely to rise further. Other European CIS countries also appear to have made what seem to be rather optimistic assumptions in their budget or programme formulations for 1997 (5% growth in Belarus, 5-7% in the Republic of Moldova. In *Belarus*, where the official claim of 3% GDP growth in 1996 is already considered doubtful, expansion at a rate of 5% in 1997 is not very probable, if only because it would require a large rise in energy imports from Russia which, in 1996, had already led to large payment arrears and supply cutbacks on the part of Russia's Gazprom. Moreover, no support from the multilateral organizations can be expected in the current political situation, and there are worries about resumed inflation as much of the budget deficit (over 3% of GDP on the high official growth assumption) is to be financed by the central bank. In the *Republic of Moldova*, the government forecast appears to be largely based on expectations of a substantial recovery in the weather-prone agricultural sector, not a firm basis for a forecast. On the other hand, the reform policies of the new government (after the end-1996 presidential elections) appear to be quite determined, in sharp contrast to Belarus, and the country can count on some international support. Nonetheless, in both countries a modest turn around, if much smaller than the official targets, can be expected.

In *Kazakstan*, the third in size of the CIS economies, the turn around to moderate growth is expected to be reached in 1997, and in several of the smaller CIS economies in the Caucasus and in central Asia, where activity had generally turned up in the course of 1996 – in some countries already in 1994 (Armenia) or 1995 (Georgia) – the recovery is expected to continue.

D. Developments for construction

Construction, including renovation and maintenance, along with the closely related furniture sector, is by far the largest market sector for sawnwood and panels. Available data on this end-use sector are presented below as background to the discussion of forest products markets below.

(i) European construction (Data kindly supplied by EUROCONSTRUCT, a consortium of research institutes specialised in the construction sector)

In 1996, *the total output of the west European construction sector* fell, by 0.7%, dragged down by marked drops in France and Germany (-3.7% and -2.7% respectively), which between them account for 43% of the west European total. Austria, Spain, and Switzerland also recorded declines for total construction, although growth of around 4% was recorded in Denmark, Finland, Norway and Portugal. A slight recovery is expected by EUROCONSTRUCT for 1997, although with continuing declines for France and Germany. For 1998, moderate recovery (1.5% growth for Western Europe as a whole) is expected, although output will still be stagnant in Germany.

Developments for *new residential construction*, the major user of sawnwood and panels have been more volatile than for construction as a whole. For 1996, a rather steeper drop was recorded for new residential construction than for total construction in Western Europe (1.5%, compared to 0.7%), with rather steep declines in Finland (-9.0%), France (-6.1%), Italy (-3.3%), Switzerland (-8.5%) and the United Kingdom (-3.3%) (table 5). These developments, combined with the drop of 1.5% in Germany, mean that all the major forest products markets in Europe saw significant falls in activity in their main end-use sector in 1996. This picture is expected to hold good also in 1997, although there will be some improvement, notably in Finland, the Netherlands and the United Kingdom, which expects a rise of 5.5%. However, new residential construction is expected to drop in 1997 in Germany and Sweden. Overall stability is expected for 1998, with increases in output in most countries counterbalanced by continuing weakness in the major market, Germany and a few other countries.

Growth for *building modernisation and renovation* has been positive for Western Europe as a whole during the 1990s (table 6). In 1996, output for this sector grew by 1.1%, with particularly marked rises for Finland, Norway and Spain, although declines were recorded for France, Germany and Switzerland.

Table 5
New residential construction output, 1995 to 1997

	Ecu millions (1996 prices)			
	1995	1996	% change 1996/1995	1997
Austria	8,241	8,290	0.6	8,365
Belgium	6,600	6,600	0.0	6,798
Denmark	1,546	1,877	21.4	2,102
Finland	1,791	1,630	-9.0	2,038
France	22,391	21,025	-5.1	20,731
Germany	76,142	75,000	-1.5	72,375
Ireland	2,047	2,330	13.8	2,585
Italy	19,948	19,290	-3.3	18,461
Netherlands	7,629	7,550	-0.9	7,840
Norway	1,576	1,650	4.7	1,733
Portugal	3,280	3,378	3.0	3,716
Spain	15,838	16,630	5.0	16,963
Sweden	1,090	1,250	14.7	1,155
Switzerland	9,727	8,900	-8.5	8,055
United Kingdom	9,068	8,769	-3.3	9,243
Total	185,914	184,179	-1.5	182,137

Source: EUROCONSTRUCT, 1997

Table 6
Building modernization and renovation output, 1995 to 1997

	Ecu millions (1996 prices)			
	1995	1996	% change 1996/1995	1997
Austria	9,354	9,550	2.1	9693
Belgium	6,067	6,200	2.2	6,355
Denmark	6,939	6,981	0.6	7,190
Finland	3,093	3,310	7.0	3,674
France	42,754	42,155	-1.4	42,450
Germany	58,016	57,900	-0.2	59,058
Ireland	1,840	1,873	1.8	2,006
Italy	42,050	42,849	1.9	43,535
Netherlands	12,310	12,630	2.0	12,895
Norway	5,052	5,310	5.1	5,411
Portugal	470	487	3.6	506
Spain	11,159	11,907	6.7	12,550
Sweden	7,488	7,750	3.5	7,595
Switzerland	6,200	5,890	-5.0	5,702
United Kingdom	29,121	29,703	2.0	30,743
Total	241,913	244,495	1.1	249,363

Source: EUROCONSTRUCT, 1997

For 1997 and 1998, this trend is expected to continue with growth of 2.0% for Western Europe in both years, with almost all counties expected to register positive growth.

In the four *transition economies* who co-operate with EUROCONSTRUCT (Czech Republic, Slovakia, Hungary and Poland), the period 1996-1998 is expected to be one of steady recovery from the transition recession also in the construction sector. Growth rates of around 5% a year for the group as a whole are expected, although there are major differences between the different countries in rate of growth and timing. The strong growth for new residential investment in the Czech Republic in 1996-1998 is particularly noteworthy, although over the same period, and in contrast to the general trend for western Europe, there are drops for building modernisation and renovation.

(ii) North American residential construction

In North America in 1996, housing starts increased in both Canada and the United States, by 12.6% and 9.2% respectively. These increases, especially in the United States because of their magnitude, were responsible for elevating consumption of sawnwood, both hardwood and softwood, panel products and associated roundwood.

North American housing starts
(in thousands)

	1994	1995	1996	1997f
Canada	154	111	125	151
United States	1457	1350	1474	1350

Sources: Canadian Mortgage and Housing Corporation and United States Bureau of the Census (United States forecast by Western Wood Products Association).

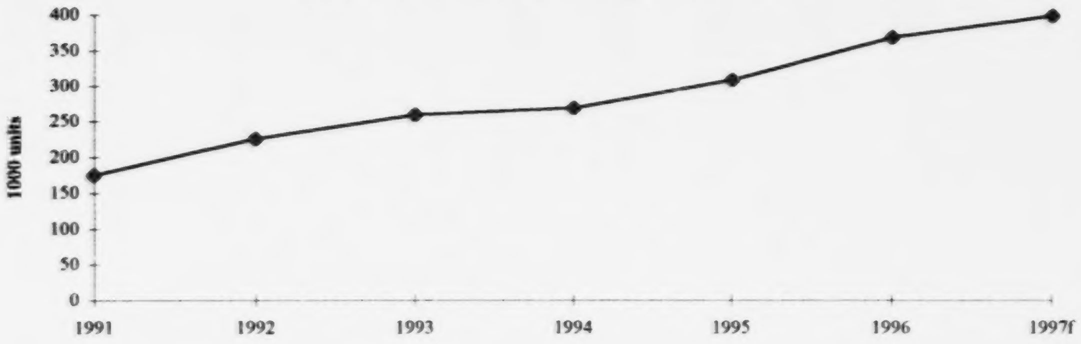
In the United States, 79% of the starts were single-family homes. Housing starts are forecast to fall in the United States in 1997, by 5%, down to 1.4 million according to the Western Wood Products Association. In April 1997, United States housing starts rose 2.6 percent, equivalent to 1.47 million units, a level inconstant with predictions of a housing decline. According to the Bureau of the Census, United States starts were 4% lower in the first quarter of 1997 as compared to the first quarter of 1996.

The Canadian recovery from a 3-year slump was fuelled by favourable interest rates (under 8 percent) and a stronger economy due to better export markets aided partly by to a depreciated Canadian dollar. Nonetheless, the 1996 level was substantially below the 182,000 homes built in 1990. Canadian Mortgage and Housing Corp forecast that starts will hit 134,600 in 1997, up 9.1% and *Widman's World Wood Review* is predicting a startling 36 percent increase in housing starts for 1997, to 170,000 units.

Mobile home and factory-built/prefabricated home construction is not reported in the United States national figures. (Mobile homes are built off-site and then moved as a whole or in pieces on a trailer to the erection site where the house is assembled.) However according to the Manufactured Housing Institute, this home building sector has risen from 175,000 units in 1991 to 370,000 in 1996 (graph 4). Furthermore they forecast a 5 to 7% increase in 1997, to 400,000 units. At this level the industry would consume about 3.5 million m^3.

Graph 4

United States mobile home starts, 1991 to 1997



Source (including forecast): Manufactured Housing Institute, 1997

This record level of mobile homes has been achieved due to population growth and the rising need of affordable housing for the less affluent and younger buyers according to *Widman's World Wood Review*. Other advantages cited by buyers are improved architectural designs and low on-site construction costs (frequently with a concrete slab foundation). Typically all wood construction, mobile homes have expanded from "double-wides" which mean that 2 halves are connected on site, into "multiple-wides" which opened the door for even larger mobile homes. The width of a mobile home is traditionally limited by the width of one lane of the road.

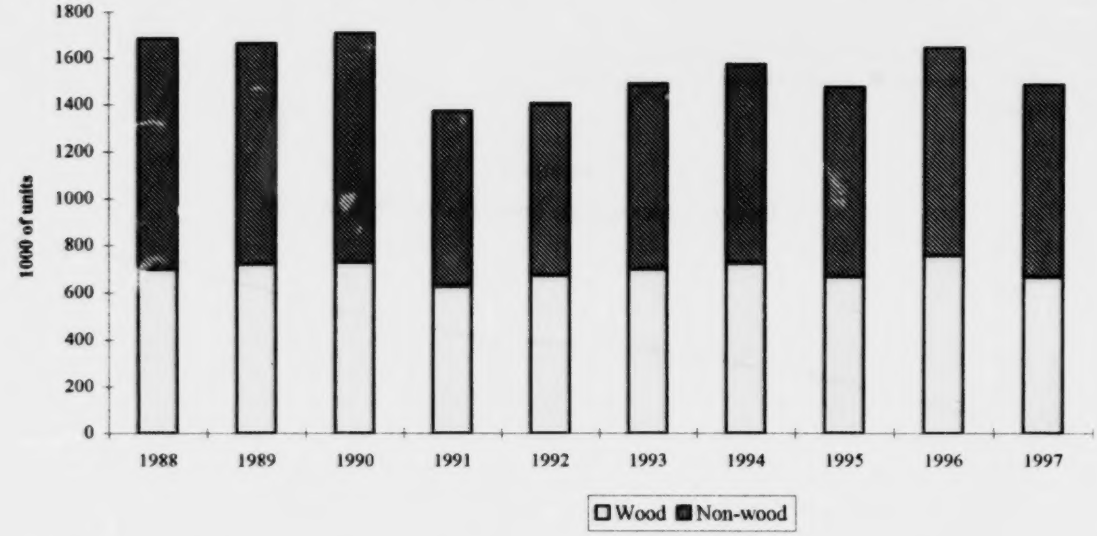
(iii) Residential construction in Japan

Housing construction grew strongly in Japan in 1996, exceeding 1.64 million units, the highest level since 1990 (graph 5). The announced imposition of a 2% increase in the national sales tax (from 3% up to 5%) in April 1997 encouraged many Japanese to put forward their construction plans for fiscal reasons. Also contributing to the strong housing demand were low mortgage rates (3.5 to 4%).

Partly in reaction to this surge in 1996, the first months of 1997 have seen a decline in housing starts. From January to April 1997, each month was lower than the equivalent month in 1996. April 1997 starts were 9.3% below those for April 1996. This trend is official (by the Ministry of Construction, reported in *Japan Lumber Journal*), expected to continue, because of low levels of application for mortgage finance and the continuing negative reaction to the new consumption tax. The share of wooden houses in total starts remained constant, around 45% between 1994 and 1996. Starts of 2x4 or "American-style" houses rose 26.6% in 1996 to 94,000 units, partly due to their favourable performance during the Kobe earthquake in 1995 according to *Japan Lumber Reports*. Prefabricated or factory-built houses increased also.

Graph 5

Japanese wooden versus non-wooden housing construction, 1988 to 1997



1997 forecast by Japanese Ministry of Construction.

Secretariat estimate based on Japanese Ministry of Construction forecast and first quarter 1997 results.

Source: Japanese Ministry of Construction

E. Furniture

Demand for forest products stems from additional markets like furniture, millwork, flooring, mouldings, etc. Information for this section on furniture is gathered from the European Federation of Associations of Particleboard Manufacturers (FESYP) *Annual Report 1996/1997*. FESYP's source of information is the Centre for Industrial Studies (CSIL in Milano, Italy).

Western European production of furniture (both wood and non-wood combined) appears to have peaked in 1994 at ECU 60.3 billion and was at ECU 59.8 billion in 1996. Production was down 0.8% in value in 1996 over the previous year for the four major producers together (Italy (0.8%), Germany (-3%), France (0%) and the United Kingdom (+5%)).

Of this production, approximately 25% is exported, varying from 40% of production in Italy to 16% in France and Germany and 12% in the United Kingdom. Some 60% stays within the European Union, but growing markets are in Asia Pacific, central and eastern Europe and the United States. Italy's exports were constrained by an 8% appreciation in the lira which had direct consequences on its imports and consumption of sawn hardwood.

Production of office furniture (again wood and non-wood combined) grew by 5% from 1994 to 1995, the latest statistics quoted by FESYP from a study by the European Office Furniture Association (Fédération Européenne du Mobilier de Bureau). Exports increased 9.4% over the same period. European Union imports have been generally declining since their peak in 1990, although 1995 marked a slight rise.

Chapter 3

TRENDS IN THE SUPPLY, TRADE AND CONSUMPTION OF FOREST PRODUCTS

A. Roundwood

(i) Roundwood supply

Corresponding to weak demand for sawnwood in the first half of 1996 and the weak demand for pulp throughout 1996, removals of roundwood in Europe fell 3.2% in 1996. Most of the decrease was in softwood roundwood, which fell by 4.5% to 239.4 million m^3. Hardwood roundwood removals were about even with 1995 at 108.9 million m^3 (1996 roundwood removal statistics were not available for the following countries which normally produce over 1 million m^3 per year: Austria, France, Germany, Portugal, Spain and Slovenia) (table 7). "Roundwood" includes "industrial wood in the rough" plus fuelwood; "industrial wood in the rough" combines sawlogs, veneer logs, pulpwood and other industrial wood. Pulpwood is used to manufacture pulp and wood-based panels.

Removals or production of coniferous sawlogs and veneer logs dropped 3.9% to 134.1 million m^3 in 1996 in Europe (with estimates for the countries not submitting statistics above). The largest decreases were for Sweden, down 3.5 million m^3 and Finland, down 1.4 million m^3, which together accounted for 90% of the reported European decrease (table 8).

According to *Holz-Journal*, after an important increase in 1995, removals in Germany (for which official data have not been received) fell in 1996, by 6% to 37.0 million m^3 for all roundwood with the following breakdown: 28.3 million m^3 of softwood logs, down 0.8 million m^3 from 1995; 3.8 million m^3 of hardwood logs, minor change from 1995; softwood *industrieholz* (pulpwood and other small-sized logs) fell "remarkably" to 8.7 million m^3; and hardwood *industrieholz* was at 4.9 million m^3.

Hardwood log removals fell 2.5% in 1996 in Europe with the most important drops in removals in Romania (down 672,000 m^3), Finland (down 191,000 m^3) and Hungary (down 101,000 m^3).

Corresponding to lowered demand for pulp and panel products made from pulpwood-sized logs, European softwood pulpwood removals fell 6.5% from 1995's record high, to 80.2 million m^3 in 1996. The largest drops were in Sweden, down by 15.2% (or by 3.3 million m^3) to 18.4 million m^3 and Finland, down by 7.1% to 17.1 million m^3. Hardwood pulpwood also fell, by 2.6% in 1996, to 31.3 million m^3. Again the largest drops were from Finland, down 15.0% to 3.9 million m^3 and Sweden, down 13.8% to 2.5 million m^3. In the Baltic Countries, production of pulpwood slowed from the frantic pace in 1995 and in 1997, during the Timber Committee's "Baltic Countries forest and forest industries study tour", large stocks of pulpwood were at the dock waiting for buyers. Pulpwood is further discussed in section E.

The fuelwood assortment of roundwood advanced in Europe in 1996, by approximately 4.2% to 39.9 million m^3 for hardwood and by approximately 2.8% to 17.8 million m^3 for softwood. Faced with rising energy prices and localized shortages of heating, some of the largest increases came in countries in transition. The fuelwood statistics are difficult to collect since considerable quantities for local consumption are not recorded.

In the Russian Federation in 1996, coniferous roundwood removals fell by 18.5%, to 69.4 million m^3, a one-year drop of 15.7 million m^3. Roundwood removals now stand at less than half of the 1992 volume. Hardwood roundwood removals also fell by 18.3%, to 25.7 million m^3. Softwood log removals fell 16.8% to 35.3 million m^3 in 1996 and hardwood log removals fell 17.9% to 8.4 million m^3, a volume equal to only one-third of the 1992 volume. The weak export and domestic pulp and panel markets reduced the demand for pulpwood-sized logs and thus the removals were 25.7% lower for softwood (13.9 million m^3) and 21.7% down for hardwood (3.6 million m^3). However, there is a strong latent demand for forest products in Russia, and even now in some areas, sufficient disposable income. The main causes for reduced

Table 7

Roundwood removals in Europe, 1994 to 1996

Product	1994	1995	1996	Change 1995 to 1996	
				Volume	Percent
		(million m3)			(%)
Coniferous	240.9	250.6	239.4	-11.2	-4.5
Broadleaved	105.1	109.2	108.9	-0.3	-0.3
Total	346.0	359.8	348.3	-11.5	-3.2
of which :					
Fuelwood	55.8	55.6	57.7	2.1	3.8
Industrial wood	290.2	304.2	290.6	-13.6	-4.5
- Sawlogs	164.7	170.1	163.9	-6.2	-3.6
- Pulpwood	109.9	117.9	111.5	-6.4	-5.4
- Other	15.6	16.2	15.2	-1.0	-6.2

Table 8

Removals of coniferous logs in selected countries, 1993 to 1996

	1993	1994	1995	1996 (prelim.)	Change 1995 to 1996	
					Volume	Percent
			(1000 m3)			(%)
REMOVALS						
EUROPE :	117882	135522	139592	134103	-5489	-3.9
of which :						
Sweden a/	25400	28500	34300	30800	-3500	-10.2
Finland	17469	22012	21697	20267	-1430	-6.6
Germany	14753	19741	17029	17029	...	...
France	11662	12815	13407	13407	...	...
Poland	7424	7726	7656	7624	-32	-0.4
Austria	6363	7953	7513	7513	...	...
Czech Republic	4485	5156	5465	5745	280	5.1
Spain	4533	4675	4375	4375	...	...
Norway	4764	4282	4590	3933	-657	-14.3
Portugal	3521	3796	3796	3796	...	...
United Kingdom	3369	3510	3514	3728	214	6.1
Turkey	2742	2541	3083	2683	-400	-13.0
Romania	1592	1800	1974	2479	505	25.6
Other countries	9805	11015	11193	10724	-469	-4.2

a/ Felling year.

removals must be sought on the supply side including obsolete plants and equipment, lack of investment capital, problems with spare parts, elevated transport costs and interrupted distribution networks, etc.

In North America, statistics are available only for the United States as Canada no longer collects annual harvesting statistics at the national level. Softwood roundwood removals dropped 3.4% to reach the lowest level in the last 5 years of 277.0 million m^3. Hardwood roundwood removals did not change appreciably in volume in 1996, staying at 213.6 million m^3.

Softwood log removals fell 1.2% in the United States to 171.4 million m^3. Hardwood log removals rose slightly, by about 1%, to reach 70.1 million m^3. Pulpwood, some of which will be used for panels and energy, fell 3.1% for softwoods and rose 3.4% for hardwoods. Fuelwood removals decreased for both softwoods and hardwoods, by 33.8% to 9.8 million m^3 and by 1.8% to 74.2 million m^3.

(ii) European removals

European removals of roundwood fell in 1996 for all assortments, with the notable exception of fuelwood. Coniferous roundwood fell as its components all dropped: sawlogs and veneer logs by 3.6% to 163.9 million m^3, pulpwood by 6.5% to 80.2 million m^3. Hardwood roundwood removals remained at 1995 levels, however, sawlogs and veneer logs fell, by 2.5% to 29.8 million m^3.

Softwood log prices in Germany fell through 1995 and into the first half of 1996 (graph 6). In step with rising sawnwood prices at mid-year 1996, prices came back sharply in Germany, but not to the levels of early 1995. In Finland, similar trends were observed for pine and spruce logs (graph 7). The magnitudes will change in different countries, but the net result is that in many other European countries log prices followed these same movements.

In mid 1997 log prices were increasing in Germany due to competition between sawmills for sawlogs. Apparently mills are trying to gain economies of scale by using more of their available capacity. Concurrently plans have been announced for new large (0.5 million m^3 log input) sawmills which has already influenced sawlog prices.

Because pulp log markets in mid-1997 are limited, Austrian forest owners are foregoing thinnings for the present time. Inventories of pulpwood in the forest and mills are full, partially due to the salvage of trees felled by snow and ice storms in the first months of 1996.

The boundary line between "round pulpwood" and "logs" varies over time, and according to technology and market conditions. Statistics are complicated and mixed for pulp logs and sawlogs, especially in the Baltic Countries. For instance, in Estonia, improved sawing technology has enabled sawing small-diameter (7 to 8 centimetre small-end diameter) logs that otherwise would have been pulpwood. In 1996 and early 1997 when pulpwood markets were depressed, enterprising sawmillers upgraded larger pulp logs by sawing them.

Many of the countries in transition to market economies have experienced severe interruptions in roundwood flows as former state controlled lands are reverted back to private owners. The restitution problem manifests itself in two ways: first there is a lack of forest management and harvesting on lands which are to be returned to private owners but which are restricted from cutting by the government during the process; second, new private owners often take some time before initiating harvests.

(iii) North American removals

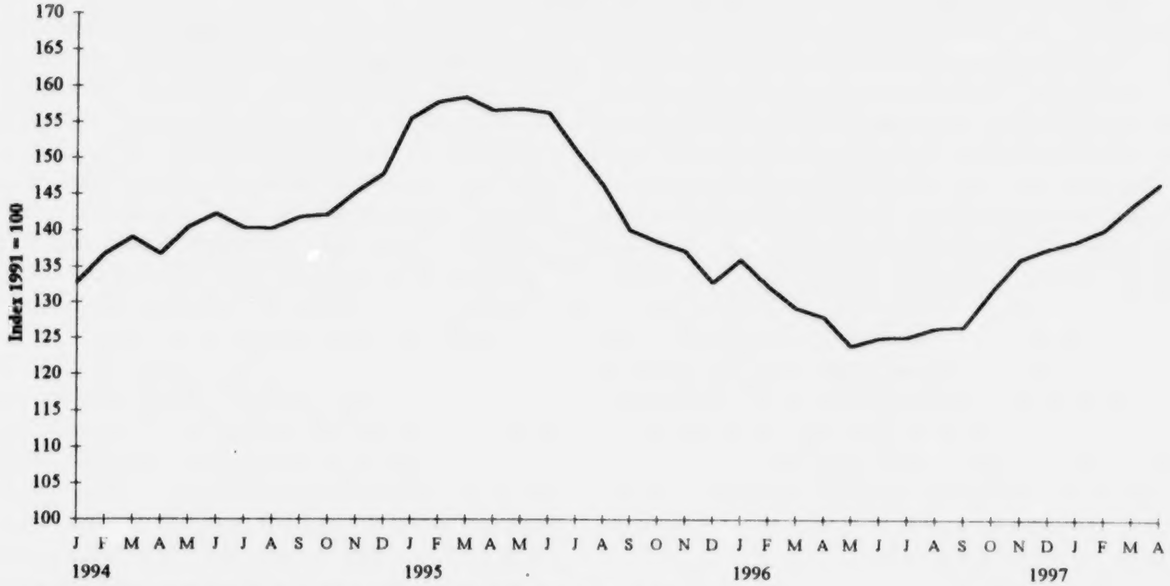
It is interesting to examine in some detail, the developments in one of the major forest products exporting regions, British Columbia (BC), Canada, which is undergoing major structural change, due among other things, to changes in forest practice to conserve biodiversity and to ensure long-term sustainable timber supply.

Three BC government programs are constraining roundwood removals: the 1995 Forest Practices Code, the Timber Supply Review and the Protected Areas Strategy. *Widman's World Wood Review* cites several additional reasons for the current reductions: overcutting from 1960 to 1990, lack of intensive reforestation during the same 30 years, environmental pressures, and public demand for more parks and recreational lands. There are additional pressures on BC lands, for example, overlapping aboriginal land claims total 120 percent of the province land area. The chief forester of the province has said that the Code would restrict the annual allowable cut by 6% in the short term, but as a worse case, by 19% percent in the long term, i.e. from 74 million m^3 in 1996 to 60 million m^3 in 2000 (graph 8).

Graph 6

Price indices for spruce logs from public forests in Germany

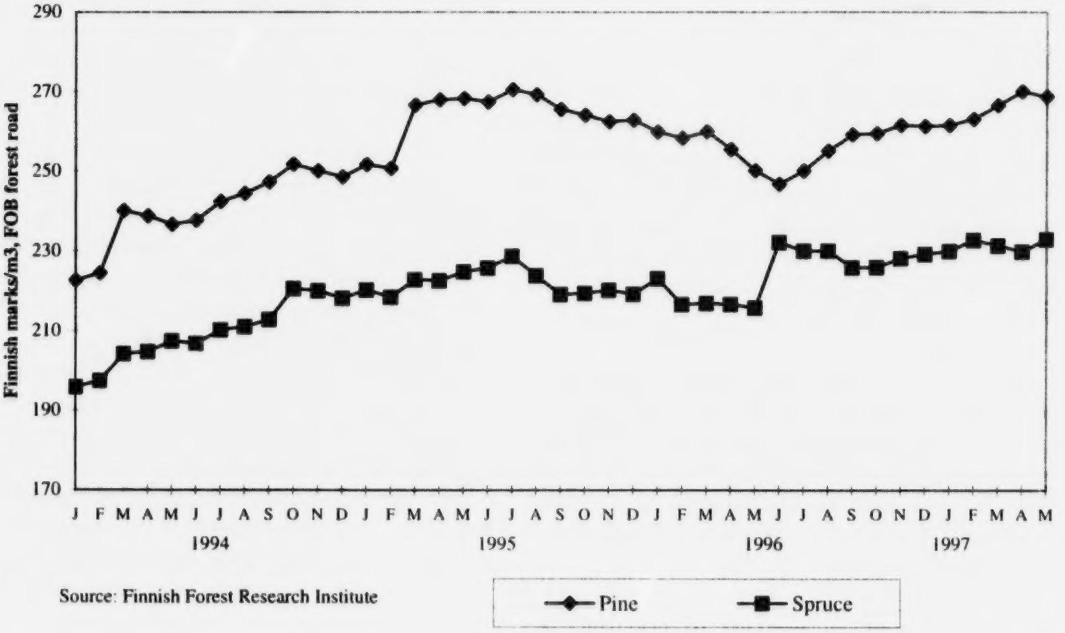
1994 to 1997



Source: Preise und Preiindizes für die Land- und Forstwirtscchaft, Statistisches, Bundesamt, 1997

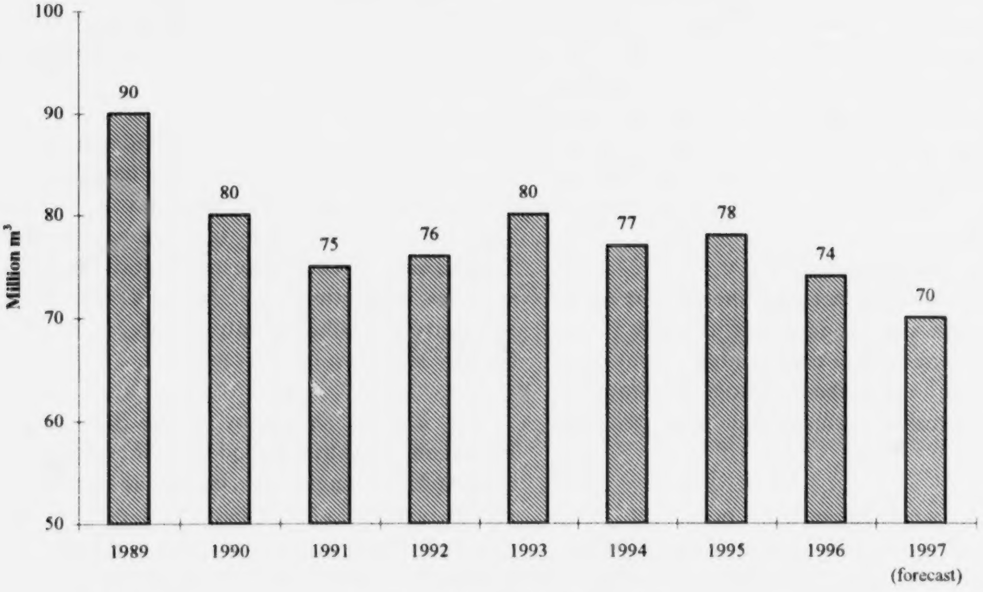
Graph 7

Finnish log prices from private forests, 1994 to 1997



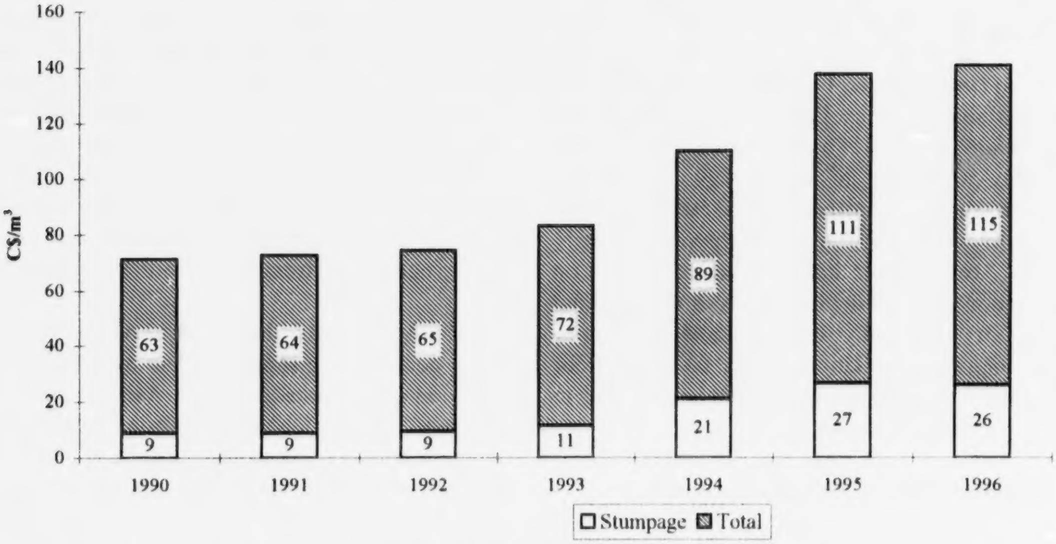
Source: Finnish Forest Research Institute

Graph 8
British Columbia harvests, 1989 to 1997



Source: Official data quoted by and forecast from *Widman's World Wood Review, 1997.*

Graph 9
British Columbia coastal logging costs, 1990 to 1996



Source: Primex Forest Products Ltd. presentation at Pacific Rim/World Wood Products Marketing Conference, 1997

In 1996, BC concluded the first full year under the new Forestry Practices Code which is designed to improve forest management and harvesting techniques. Implementation of the Code has raised logging costs to C$106 per m^3 in 1996, up 70% from C$62 in 1992 according to the accounting firm, Price Waterhouse (graph 9). There is a strong impetus from the government to maintain harvest levels as the Minister of Finance in 1992 equated a 1% drop in the annual harvest with a C$76 million rise in the provincial deficit.

Some BC sawmills faced log shortages in early 1997. Despite high sawnwood prices, the low wood chip and pulp log prices were constraining output. The industry is trying to diversify from commodity sawnwood to increased value-added products like millwork.

For some companies in northwest BC, provincial logs cost more than sawlogs imported from Alaska according to *Wood Technology*. Since companies are required by Provincial law to also cut pulpwood when logging for sawlogs, the depressed state of the pulpwood market has postponed some harvests on BC lands and led instead to importing sawlogs.

Meanwhile Québec reduced harvest volumes for 6 months, from October 1996 through March 1997 because of the excessive build-up of wood chips caused by the collapse of the pulp and newsprint markets. The interruption in wood supply was forecast by *Widman's World Wood Review* to result in some sawmill production disruptions.

In the *United States*, Forest Service timber sales have dropped sharply since 1986 when environmental pressures mounted. In 1986 the Forest Service sold approximately 50 million m^3, but by 1996 the volume was down to about 15 million m^3, a 69% reduction according to *Widman's World Wood Review*. In early 1997, warm, wet weather had a negative impact on forest extraction and resulted in many mills working short hours or temporally closing their operations. Apparently logging in situations where the forest floor is temporarily damaged is now less tolerated due to stronger conservation pressures.

(iv) European trade of wood in the rough

Europe's trade deficit of industrial wood in the rough (WIR includes all roundwood with the exception of fuelwood) came back to 1994 levels after it burgeoned in 1995 with the increased imports of pulpwood in Finland and Sweden for the then vibrant pulp and paper market. In 1996, pulpwood demand was low and the sawnwood market was flat during the first half of the year. Europe's imports, essentially pulpwood, especially from the Baltics and Russia, and tropical logs, both fell in 1996.

In Europe, imports of WIR were about equal for hardwood and softwood, after hardwood WIR fell more, by 28.6% in 1996, than softwood, which fell by 13.0% (table 9). Due to low demand for pulpwood, Finland and Sweden reduced imports by the greatest volumes, reductions of 2.8 and 2.6 million m^3 respectively. Other countries reduced imports significantly as shown on the table.

Exports shrank by 16.5% for softwood and hardwood industrial wood in the rough, of which softwood volumes are twice as great. Where roundwood prices fell, especially in early 1996 for logs and pulpwood, forest managers withheld WIR from market and exports fell in most countries.

When pulpwood prices were depressed in 1996, Nordic forest owners held back from selling pulp logs. Simultaneously, because pulpwood is always generated by harvests, sawlog harvests were postponed until prices for pulpwood rose. As a result, some Nordic sawmills faced shortages of sawlogs and with a higher demand for sawnwood in the second half of 1996, prices of sawnwood rose. Furthermore, the low income from residue sales reduced profit margins for sawmills.

Latvia did not face the same set of economic circumstances because there is no pulpmill in the Baltic Countries, so all pulpwood-sized logs which are destined to be converted to pulp, are exported. During the above mentioned Nordic shortage, both pulp logs and sawlogs were exported to Sweden. Since Latvian sawmillers were not constrained by log supply problems, they benefitted both from the favourable sawnwood demand from importers and the rising sawnwood prices from their Nordic neighbours.

Latvia and Lithuania imported logs from Russia when domestic log supplies alone were not sufficient in 1996 as constraints continue due to the restitution problem. These log imports from Russia are set to increase now that log export tariffs have been dropped. Currently in mid 1997, market specialists in the Baltics said the demand for pulpwood from Finland and Sweden is strong.

Table 9

Exports and imports of industrial wood in the rough, 1993 to 1996

	1993	1994	1995	1996 (prelim.)	Change 1995 to 1996	
					Volume	Percent
			(1000 m3)			(%)
EXPORTS						
EUROPE :						
- Coniferous	10850	12036	12690	10583	-2107	-16.6
- Broadleaved	4642	5415	6841	5716	-1125	-16.4
TOTAL :	15492	17451	19531	16299	-3231	-16.5
of which :						
Germany	4403	4698	4919	2693	-2226	-45.3
Czech Republic	1186	605	2161	2687	526	24.3
France	2166	2433	2475	2380	-95	-3.8
Sweden	833	1054	1725	1620	-105	-6.1
Switzerland	1055	1053	1016	979	-37	-3.6
Belgium-Luxembourg	629	874	805	748	-57	-7.0
Finland	912	1444	865	579	-286	-33.1
Hungary	512	451	562	554	-8	-1.4
Slovakia	284	910	759	529	-230	-30.3
Austria	551	631	482	482	...	...
Portugal	361	629	778	452	-326	-41.9
Poland	584	752	416	416	...	...
Other countries	2016	1917	2568	2181	-388	-15.1
Russian Federation	14200	11117	18374	15779	-2595	-14.1
Canada	1175	1253	1187	890	-297	-25.0
United States	13030	12215	12817	11917	-900	-7.0
North America	14205	13468	14004	12807	-1197	-8.5
IMPORTS						
EUROPE :						
- Coniferous	15198	19099	20188	17564	-2624	-13.0
- Broadleaved	15776	21818	25554	18256	-7298	-28.6
TOTAL :	30974	40917	45742	35820	-9922	-21.7
of which :						
Finland	5468	6761	9353	6575	-2778	-29.7
Sweden	4273	6666	7653	5008	-2645	-34.6
Italy	4670	6068	4936	4936	...	...
Austria	4483	4828	4454	4454	...	...
Norway	1151	2617	3717	2467	-1250	-33.6
Belgium-Luxembourg	1859	2817	3141	2391	-750	-23.9
Spain	1281	1426	2192	1782	-410	-18.7
France	1446	1989	2345	1574	-771	-32.9
Germany	1126	2742	1743	1173	-570	-32.7
Portugal	420	1105	1632	1065	-567	-34.7
United Kingdom	246	311	662	836	174	26.3
Turkey	2231	1196	777	777	...	...
Other countries	2320	2391	3137	2782	-355	-11.3
Canada	4428	5255	6495	6088	-407	-6.3
United States	458	797	706	516	-190	-26.9
North America	4886	6052	7201	6604	-597	-8.3
Japan	22984	22385	22385	22385	...	...

There has been a surprisingly strong demand in 1997 from Asia for beech logs from Denmark (although it was only 5,300 m^3 in 1996). Apparently the prices paid are far above those paid by the domestic market, thus creating a shortage and associated price rises for sawmillers. The logs are being shipped from Denmark for example to Japan, China, South Korea, Taiwan, Thailand and Malaysia. But it is the efficient utilization of the beech which is outstanding. In Asia, the logs are sliced or peeled to a paper-thin, 0.2 millimetre-thick veneer, so thin that it cannot be dried alone, but must be immediately glued to a substrate, such as an MDF panel. Even then the thinness of the veneer will not allow sanding, but rather it must have a finish applied, which can then be sanded!

Log sales in France in the Spring of 1997 recorded higher prices for oak and beech logs, up by 16 and 9 percent respectively compared to the spring sales of 1996 according to *Le Bois National*. For the first time in another French sale, the average price of beech logs surpassed that of oak logs. This development is due to the popularity of beech sawnwood and veneer in Europe as well as Asia. Beech sawnwood at mid-1997 has risen in price by 5% and beech log prices have increased according to *L'Echo des Bois* while oak has fallen by about the same.

In *Russia* the problems in roundwood trade arise from a compounding series of causes, not the least of which is cashflow and the resulting lack of working capital. Purchasing logs is difficult and transportation costs have doubled many times over. In 1996, exports of industrial wood in the rough, notably, to Japan (mostly logs) and Finland (most pulpwood), fell by 14%, to 15.8 million m^3. Government agencies continue to reorganize and trade channels are disrupted. Since the former financial support from Moscow is lacking, some companies have been able to buy equipment with loans from the Eximbank and apparently some financing is available through some Russian banks. According to *Random Lengths* the situation might not be as bad as painted by the official statistics because there is a level of "unofficial" and therefore unaccounted sales conducted.

(v) North American trade of wood in the rough

The North American trade surplus has been falling over the last 5 years for WIR due to adjustment within the United States to the decrease in wood supplies from National Forest Lands in the Pacific Northwest. United States exports have fallen as domestic needs prevailed. North American imports, essentially from the United States by Canada, shrunk by 6.3%. North American exports, of which 93% are from the United States, also fell in 1996, by 8.5% reflecting the strong domestic demand for sawnwood and sawlogs in both countries and weak demand for pulpwood, including chips, from Japan. Log exports to the major destination, Japan actually increased.

United States softwood log* export destinations
(1000 m^3)

	1995	1996	% change 1996/1995
Japan	377.7	395.0	4.6
Canada	120.8	78.9	-34.7
Korea	49.9	42.6	-14.6
China	4.3	3.3	-23.3
Total	566.7	521.1	-8.1

* sawlogs are but one assortment of WIR.
Source: *Random Lengths Export*.

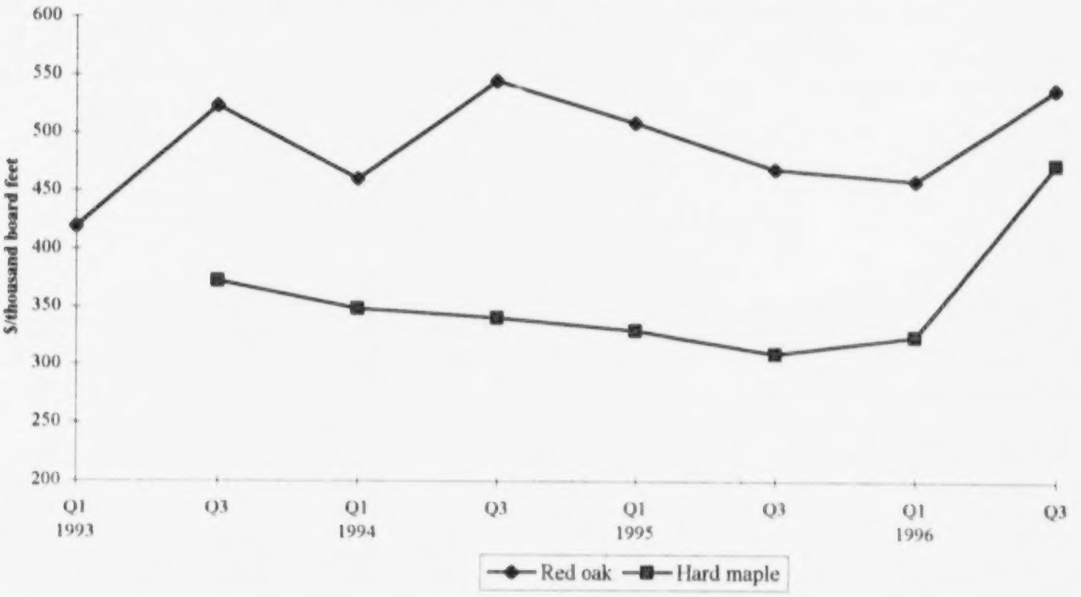
In 1997 markets for hardwood logs in the Midwest United States have been extremely active. The technology has changed from circular saws to band saws in order to reduce the blade kerf (and thereby sawdust) and improve wood yields. In addition, new sawing rigs are capable of sawing small-diameter logs, down to a small end diameter of less then 13 centimetres. A variety of new species are meeting acceptance in domestic and export markets too as prices rise for the more popular species.

In the United States, hardwood sawlog prices rose in 1996, and for many species they regained or exceeded 1994's high levels (graph 10). The price of hard maple logs has escalated with the price of maple sawnwood. Although the graph stops in 1996, the same upward trends were continuing in early 1997.

In addition, hardwood pulpwood markets have returned in the United States, which lends profitability to small log sawing with its greater waste. Pulp manufacturers have improved handling and technology such that they can accept roundwood down to 5 centimetres. Low grade markets for railroad ties (sleepers) and pallets are strong, which diversifies selling options.

Demand, domestic and export, is so strong in mid 1997 in the Midwest United States that sales attract local and foreign bidders. Asian buyers have been active in both the United States and Europe for veneer logs.

Graph 10
United States hardwood log prices, 1993 to 1996



(Prices paid for red oak and hard maple, grade 1 logs, delivered to sawmills, Doyle log scale).
Source: Ohio Division of Forestry, "Ohio Timber Prices".

B. Coniferous sawnwood

(i) Consumption

The *apparent domestic consumption of coniferous sawnwood* in *Europe* fell about 2% in 1996 to 72.0 million m^3, the third fall in a row (table 10 and graph 11). Annex table 1 gives apparent consumption totals and per capita for the last 3 years.) (This consumption value differs slightly from those in the table because Austria's statistics arrived after completion of the table.) This drop in consumption is a result of slowing construction as described in Chapter 2. However the United Kingdom, which has the third highest consumption in Europe at roughly one-tenth of the European total, but less than half of that of Germany, increased consumption by 4.8%. While the rise in 1996 of the United Kingdom's consumption left it about 30% below the 1994 level, the United Kingdom's imports of sawn softwood, up 6.7% over 1995, provided an important balance to other countries' decreased consumption.

Germany's consumption remained stable at 15.9 million m^3, after falling in 1995 by 1.3%. (Production statistics were unavailable for France, thus the French and European consumption figures may vary from that shown in the table.)

Another notable increase, but on a lower volume, was Norway, by 15% to 2.4 million m^3. Denmark decreased consumption by 13.1%, Ireland by 10.8% and Switzerland by 8.4%. Sweden's "apparent" domestic consumption fell, but in actuality the destocking from sawmills was partly responsible and stock changes are not included in apparent consumption calculations; forecasts for 1997 are for a renewed strength in the Swedish domestic market demand.

Domestic consumption in *countries in transition to market economies* varied in 1996 with positive movements for: the Czech Republic, up 7.5%; Slovakia, up 130.1%; and Hungary, up 3.7%. By contrast, Poland was down 5.8% and Romania was down 3.8%.

It is not prudent to discuss consumption levels, for countries submitting only partial statistics. (Austria, Bulgaria, Denmark, France, Netherlands, Portugal, Spain and others submitted partial, or no statistics, so the table values are secretariat estimates.)

Russian domestic consumption fell a further 17.0%, to 14.1 million m^3. Unofficially there could have been other consumption on a more local level which does not get recorded in Moscow.

Table 10

Sawn softwood balance in Europe, the Russian Federation and North America, 1992 to 1996 (million m3)

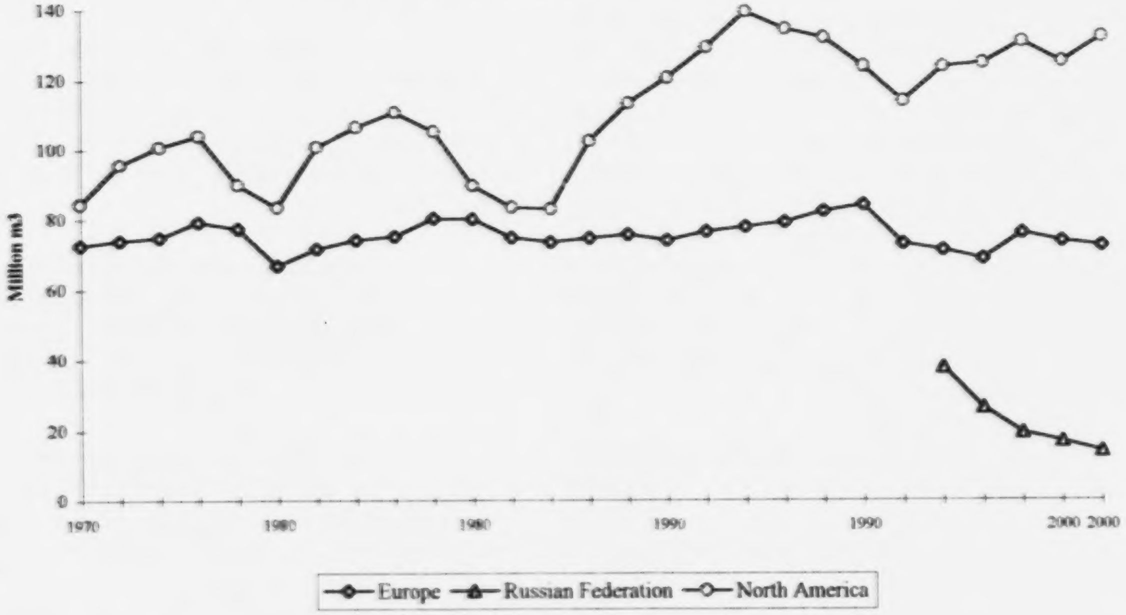
	1992	1993	1994	1995	1996 (prelim.)	Timber Committee estimates a/	
						for 1996	for 1997
EUROPE							
Production	66.66	67.68	73.53	76.33	75.60	72.88	73.16
Imports	27.57	27.11	32.35	27.41	27.40	27.21	27.54
Exports	23.02	26.12	30.00	30.17	30.71	29.28	29.41
Net trade b/	-4.55	-0.99	-2.35	2.76	3.31	2.07	1.87
Apparent consumption	71.21	68.67	75.88	73.57	72.29	70.81	71.29
RUSSIAN FEDERATION							
Production	43.70	32.80	24.64	22.53	18.36	20.60	22.30
Imports	0.02	0.01	0.04	0.04	0.04	0.04	0.04
Exports	5.96	6.46	5.33	5.64	4.35	5.44	5.59
Net trade b/	5.94	6.45	5.29	5.60	4.31	5.40	5.55
Apparent consumption	37.76	26.35	19.35	16.93	14.05	15.20	16.75
NORTH AMERICA							
Production	136.99	136.39	141.14	135.34	141.93	135.32	134.02
Imports	31.88	36.17	38.98	41.36	43.75	41.70	41.20
Exports	45.52	48.35	49.98	52.14	54.18	51.89	50.39
Net trade b/	13.64	12.18	11.00	10.78	10.43	10.19	9.19
Apparent consumption	123.35	124.21	130.14	124.56	131.50	125.13	124.83

a/ At September 1996 session. The Committee's estimates for 1996 and 1997 have been adjusted to make them comparable with the historical (actual) data for 1992-1996.

b/ + = net exports; - = net imports.

Graph 11

Consumption of coniferous sawnwood, 1970 to 1996



In *North America*, consumption in the United States leaped up by 6.4 million m^3, or by 5.7%, to a new record of 118.4 million m^3. Of this total, residential construction at record levels in the United States commanded 43.3 million m^3 and repair and remodeling sector took 33.8 million m^3 according to the Western Wood Products Association. Canada's consumption, also driven by increased housing starts, advanced 4.3% in 1996 to 13.1 million m^3. 1996 demand for sawnwood in North America was strong due to: high single- and multiple-family dwelling construction; low inventory levels for wholesalers and retailers; high demand for preservative treated sawnwood and continued demand from Japan and other offshore export destinations.

(ii) Coniferous sawnwood production

Production of coniferous sawnwood in *Europe* decreased in 1996 from its 10-year high in 1995 (table 11). While production decreased 1.3% (taking into account Austria's statistics which arrived after completion of the table) there was a marked difference between the first and second halves of the year. For perspective it must be remembered that in 1995 demand for coniferous sawnwood was high and prices moved up accordingly. As demand cooled in major importing markets like the United Kingdom and Germany in late 1995, sawmillers motivated by high prices, kept producing and built their stocks. The combination of high stocks and low demand subsequently led to a fall in price. At the beginning of

Table 11

Production of sawn softwood, 1993 to 1996

.	1993	1994	1995	1996 (prelim.)	Change 1995 to 1996	
					Volume	Percent
			(1000 m3)			(%)
EUROPE of which :	67682	73528	76333	75601	-733	-1.0
Main exporting countries	46504	52822	54639	54010	-629	-1.2
Sweden	12538	13616	14737	14170	-567	-3.8
Germany	10358	12365	12925	13188	263	2.0
Finland	8305	9700	9400	9200	-200	-2.1
Austria	6539	7316	7552	7552	...	...
Poland	3694	4500	4600	4280	-320	-7.0
Czech Republic	2770	2925	3220	3220	...	...
Norway	2300	2400	2205	2400	195	8.8
Other countries of which :	21178	20706	21694	21591	-104	-0.5
France	6166	6649	6827	6827	...	...
Spain	2159	1995	2507	2507	...	...
Turkey	3179	2334	2502	2502	...	...
United Kingdom	1950	2050	2050	2050	...	...
Portugal	1300	1244	1244	1244	...	...
Switzerland	1300	1200	1342	1240	-102	-7.6
Belgium-Luxembourg	900	925	925	925	...	...
Russian Federation	32800	24640	22525	18360	-4165	-18.5
Canada	58651	60648	59343	61927	2584	4.4
United States	77736	80493	75992	80004	4012	5.3
North America	136387	141141	135335	141931	6596	4.9

1996 the demand was still low and sawmillers realized that they had to reduce production and bring stock levels lower. When demand picked up in the second half of 1996, due to a lack of stocks, production had to increase and prices followed. But the rise in later 1996 could not make up for the decrease in the first half of the year and thus the annual decrease in production in Europe.

Production decreases had been called for in latter 1995 and early 1996 by European sawmillers associations as a means of bringing the market back into equilibrium. In concert with a decrease in market demand, the result was that major exporting countries reduced production, with the exception of Germany. German production increased by 2%, to 13.2 million m^3 although domestic consumption was flat. Norwegian production increased too, by 8.8%, to a volume of 2.4 million m^3.

North American coniferous sawnwood production increased in both the United States and Canada, by 5.3 and 4.4% respectively, to 80.0 and 61.9 million m^3 respectively. Canadian sawnwood production levels seemed unaffected by the "Softwood lumber agreement between the Government of the United States of America and the Government of Canada." (See section (iv) "North American developments" for details.) Before the agreement went into effect Canadian mills increased production and exports to the United States, knowing that upcoming quotas would limit exports. As housing starts in both Canada and the United States increased significantly in 1996, the domestic markets required some additional sawnwood. While exports market volumes for the United States stayed at the 1995 level, Canada exported 4.3% more in 1996, which corresponds well to Canada's 4.4% production increase. Canada's offshore sales increased 1.5% in volume according to *Random Lengths Export*.

According to the statistics received for Russian sawnwood production, in 1996 production fell 18.5%, to 18.4 million m^3, the lowest level in the last 5 years since separate statistics began being collected for the former-USSR countries. From 1992, the drop is 58%. There may be some unreported productions and exports--if so, the situation may be better than it appears here. The Timber Committee had forecast slightly higher Russian sawnwood production in both 1996 and 1997, however with the further slump in 1996, it is difficult to predict 1997 production.

(iii) Coniferous sawnwood trade

European net trade of coniferous sawnwood was again positive in 1996, confirming this 2-year trend of Europe being net exporter of coniferous sawnwood. While imports remained constant from 1995 to 1996, the 0.6 million m^3 increase in net trade resulted from increased exports (both between European countries and to destinations outside Europe). European coniferous sawnwood exports increased 1.8% in 1996, to 30.7 million m^3, primarily due to Sweden's higher exports.

Sweden, by far the largest European exporter, increased exports over 1995 levels in the second half of 1996, to ship 1.3 million m^3 more for the year, an outstanding 12.9% increase in what was generally termed a dismal market (table 12). Most other nations decreased exports, with the notable exception of Romania, which also increased exports by about the same amount, 12.6%, but on a volume 0.6 million m^3. As detailed in subchapter (v), European exports to Japan increased by 43.6% in 1996.

After a fall continued from 1995, in the first quarter of 1996 spruce and fir (whitewood) sawnwood prices improved in Europe, increasing in Sweden by 20%, and further gains occurred in early 1997 (graph 12). After sawmills' and wholesalers' stocks had been gradually drawn down, a renewed demand from countries like the United Kingdom resulted in the rise in prices in the second half of 1996. Sawnwood output was constrained by a shortage of *affordable* logs according to sawmillers, coupled with a decline in the chip demand. The increasing strength of the dollar and the pound sterling, which gained 15% over the first months of 1997, coupled with the above mentioned decrease in stocks and the continued demand, had the effect of rising prices. When the Finnish markka depreciated against the Swedish kroner in 1996, the result was more difficult competition for export markets which are often quoted in kroner; this was one reason cited for Finland's drop in exports in 1996 and Sweden's increase.

With an almost constant domestic demand ove 1996 as a whole (as estimated by apparen consumption), Germany's sawn softwood production increased slightly, making up for the fall in imports Net trade thus became less negative, than it was during the last two years. The ratio between exports and imports shows the increase in the net trade over the last few years (graph 13). The ratio between imports and apparent consumption indicates Germany is gradually becoming less dependent on sawnwood imports.

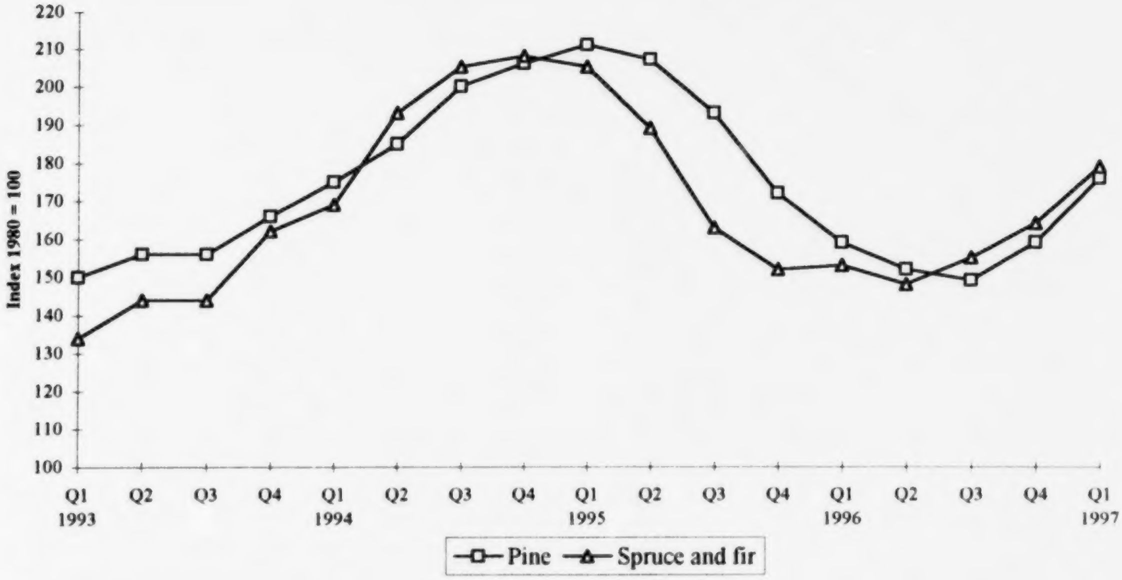
Table 12

Exports and imports of sawn softwood, 1993 to 1996

	1993	1994	1995	1996 (prelim.)	Change 1995 to 1996	
					Volume	Percent
			(1000 m3)			(%)
EXPORTS						
EUROPE of which :	26117	30002	30168	30711	543	1.8
Sweden	10040	10423	10301	11632	1331	12.9
Finland	6188	7149	7343	7016	-327	-4.5
Austria	3850	4457	4515	4515	...	...
Germany	953	1534	1565	1567	2	0.1
Czech Republic	787	1170	1512	1384	-128	-8.5
Poland	1072	1132	885	800	-85	-9.6
Norway	870	776	710	705	-5	-0.7
Romania	25	439	494	556	62	12.6
Portugal	450	540	495	440	-55	-11.1
France	366	395	386	393	7	1.8
Other countries	1516	1987	1962	1703	-259	-13.2
Russian Federation	6460	5330	5637	4348	-1289	-22.9
Canada	42945	44924	47561	49608	2047	4.3
United States	5407	5058	4581	4567	-14	-0.3
North America	48352	49982	52142	54175	2033	3.9
IMPORTS						
EUROPE of which :	27114	32346	27409	27397	-12	-0.0
United Kingdom	6421	8143	5010	5344	334	6.7
Italy	4326	4827	4612	4632	20	0.4
Germany	4487	5303	4570	4260	-310	-6.8
Netherlands	2779	3047	2636	2768	132	5.0
France	1397	1625	1562	1767	205	13.1
Denmark	1682	2278	1868	1585	-283	-15.1
Belgium-Luxembourg	1079	1284	1360	1298	-62	-4.5
Spain	970	1035	1112	1135	23	2.1
Austria	677	834	875	875	...	...
Hungary	586	712	731	760	29	3.9
Norway	487	729	626	745	119	19.0
Other countries	2223	2529	2447	2228	-219	-8.9
Canada	645	691	760	767	7	0.9
United States	35529	38288	40596	42985	2389	5.9
North America	36174	38979	41356	43752	2396	5.8
Japan	8835	9082	9082	9082	...	...

Graph 12

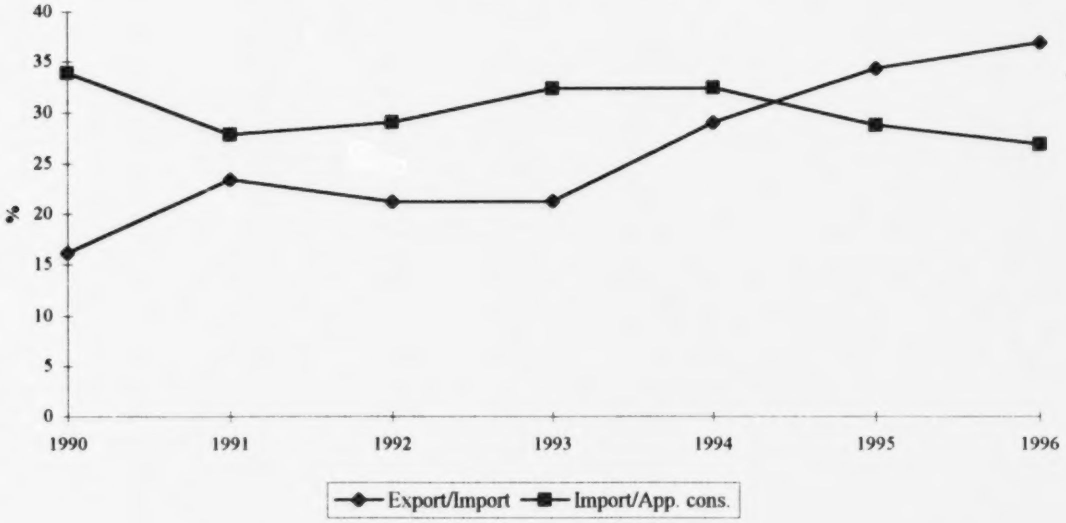
Swedish sawnwood price indices, 1993 to 1997



Source: Swedish Wood Exporters Assocation

Graph 13

Germany: sawn softwood ratios



Exports from the Baltic Countries took another leap forward in 1996 as improved quality coupled with favourable prices shifted market share to Estonia, Latvia and Lithuania. The restitution process, which gives back state land to former private landowners, has continued to a point whereby log flows from private forest lands are being re-established. Additional logs are being imported from Russia, including the Kaliningrad Region. Baltic Countries are also re-establishing trade channels with Ukraine and Belarus, thereby further assuring log sources.

Baltic coniferous sawn softwood exports, 1992-1996
(1000 m^3)

	1992	1993	1994	1995	1996	% change 1996/1995
Estonia	37	142	328	283	485	71.4
Latvia	42	254	700	996	1,286	29.1
Lithuania	26	92	260	728	1,024	40.7
Total	105	488	1,288	2,007	2,795	39.3

During the Timber Committee "Baltic Countries forest and forest industries study tour" in May 1997, it was apparent that all the necessary ingredients for even greater exports of coniferous sawnwood are coming together. These include increased capacity through new sawmills and privatized old mills, domestic and imported log supply, more stable business environment and established market channels.

Russian coniferous sawnwood exports fell by 22.9%, or by 1.3 million m^3, to 4.3 million m^3 in 1996. Exports in 1995 had risen over the previous year when market strength and higher prices facilitated prepayments. This decrease in exports corresponds directly with the cut in production (down 18.5%). Once again analysts have expressed concern that the fall was not as great, probably due to some unrecorded exports.

Russian sawnwood prices generally tend to follow European sawnwood prices but the accompanying graph shows Russian prices slightly falling in 1996 (however they rose again in 1997) (graph 14).

North American exports of coniferous sawnwood are different for Canada and the United States. Canada's exports increased 4.3% to 49.6 million m^3, a level equivalent to all other ECE region countries's sawnwood exports combined. The Softwood Lumber Agreement (discussed further under section (iv) "North American Developments", did not reduce the exports to the United States and the extra Canadian production was exported to offshore markets, primarily in Asia. Conversely, United States exports, which have been falling due to strong domestic demand and decreased sawlogs from National Forest Lands, among other reasons, appear to have levelled out at 4.6 million m^3 in both 1995 and 1996.

North American coniferous sawnwood prices did not go through the same cycle as in Europe. Instead there has been a strong upward movement since mid 1995, albeit some small peaks and valleys since mid 1996 as a result of consternation about the effects of the Softwood Lumber Agreement (graph 15). In May 1997, the price of Random Lengths' composite price series turned down, thereby leaving the near-future trend in doubt.

The Timber Committee predicted European trade of coniferous sawnwood in 1997 would rise over 1996, but it appears the magnitude may be too low, at least for exports. Since European exporters were able to find buyers during a difficult 1996, especially outside the continent, the more positive signs in early 1997 would mean that exports could rise again and that the net export margin could increase. Forecasts for Russian exports in 1997 are to rise 29% over 1996, however this forecast should be considered cautiously in light of a similar forecast for 1995. North American forecasts are based on predictions of decreased United States and Japanese housing construction in 1997 with imports falling back to 1995 levels and exports dropping 7.0%.

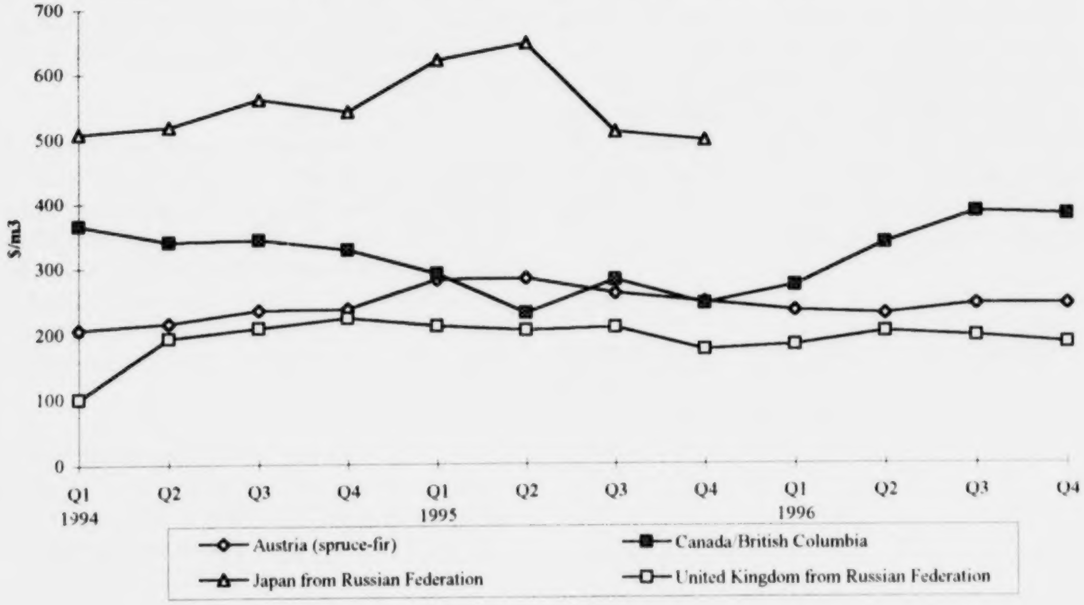
(iv) North American developments

The *coniferous sawnwood trade dispute* between the United States and Canada had been resolved in 1995, leading the United States to refund $800 million in duties held in escrow, despite additional challenges under the North American Free Trade Agreement. Then in May 1996, under threat of a punitive 10% tax on Canadian coniferous sawnwood imports, which had grown to 36% of the United States sawnwood consumption in 1995, the "Softwood lumber agreement between the Government of the United States of America and the Government of Canada" was signed.

What is the Softwood Lumber Agreement? The 5-year agreement limits duty-free Canadian coniferous sawnwood exports to the United States at 14.7 billion board feet (34.7 million m^3; 1 m^3 = 424 board feet), down from 1995's high of 17 billion board feet (40.1 million m^3). The Canadian share of the United States market has increased from 25% in 1990

Graph 14

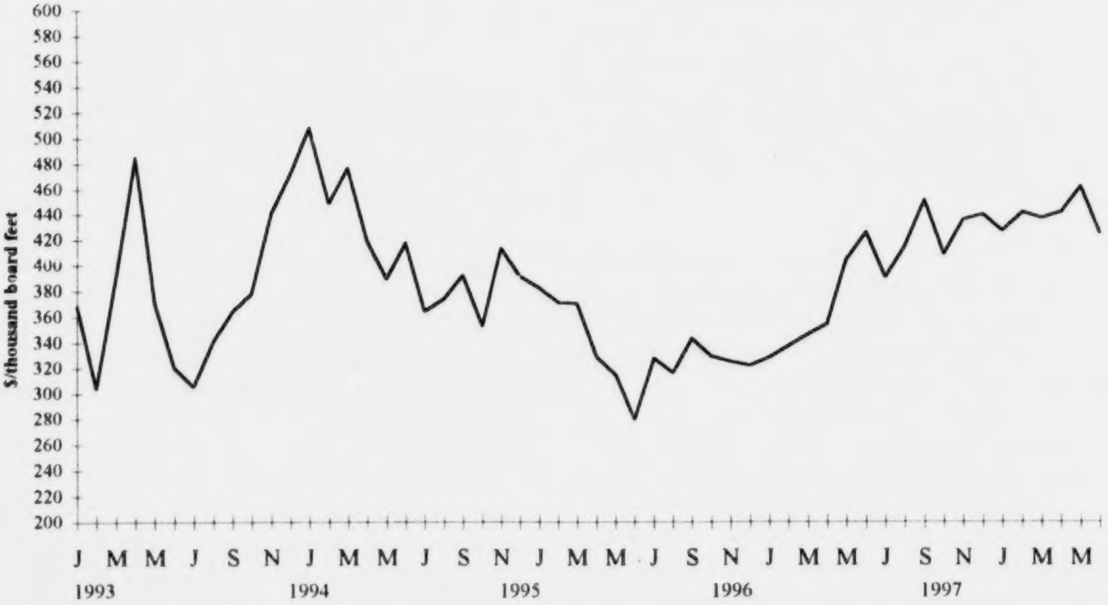
Prices of coniferous sawnwood, 1994 to 1996



Source: *Timber Bulletin,* "Forest products prices, 1994-1996"

Graph 15

North American composite coniferous sawnwood prices, 1993 to 1997



Source: Random Lengths Export

to 36% in 1995. The Canadian Government levies a tax of C$50 per 1000 board feet (MBF) on the first 1.5 million m^3 above the 34.7 million m^3, and then C$100 per MBF for any exports over that. The trade quotas do not prohibit any Canadian sawnwood from entering the United States, but only set a limit on "duty-free" sales. Once duty-free limits are exhausted, the $50 quota begins, and once the $50 quota limit is reached, the $100 penalty continues on all further shipments.

The agreement includes a price clause: if the price of 2x4s increases above $405/MBF, then Canada can ship an extra 0.2 million m^3 into the United States without a duty. (A 2x4 is a board with a nominal cross section of 2 inches by 4 inches. Its actual cross section is 3.5 inches by 1.75 inches. It is the most common structural element in North American wall construction.) Immediately in the summer of 1996 the price of 2x4s rose above the $405 mark allowing the extra duty-free sawnwood volume into the United States.

This 34.7 million m^3 cap exceeds exports to the United States by the 4 provinces involved (British Columbia, Québec, Ontario and Alberta) in any year except 1995. The Atlantic provinces, Manitoba and Saskatchewan are excluded, although combined they exported "only" 1.7 million m^3 to the United States in 1995.

The principles are spelled-out in the agreement, but the practicalities of implementing the system are complicated. The duty-free allowance was divided among individual companies (sawmills, remanufacturers and merchants) with a monitoring system by both governments.

What are the market results of the agreement in 1997? The agreement appeared to have caused trade distortions, but they were not as severe as feared. The bellwether price for 2x4s was $480 per MBF in May 1997, a price down from $505 per MBF the month before the first year of the softwood lumber agreement ended, but nevertheless, a price well above the $350 per MBF when the agreement began. The supply constraints imposed by the Agreement, at a time of strong demand, raised prices beyond the equilibrium level, thereby raising the profit margins of United States sawnwood producers.

Some 600 sawnwood producers in the 4 provinces affected, received quotas in November 1996 (British Columbia 59%, Quebec 23%, Ontario 10.3% and Alberta 7.7%). Some mills which had smaller than expected quotas, restricted United States sales. As quotas and the fiscal year-end deadline of 31 March 1997 neared, a surge of buying resulted in a price rise. Companies had an additional incentive to fulfil their quotas: if a quota was not reached in 1996, it could be reduced in 1997.

Price swings in the United States domestic market were blamed on widespread confusion over the quota on Canadian sawn softwood exports to the United States. When Canadian producers received their quotas, the market became volatile--the opposite reaction had been expected. Prices rose when some producers indicated they had already exceeded quotas and would reduce shipments and other large producers who received unexpectedly low quotas indicated they would have to cut shipments. Meanwhile Canadian producers who received quotas lower than last year's United States export levels have been working to redirect their surplus volumes to domestic and offshore markets including Japan, United Kingdom, Caribbean, Mexico, South America, Netherlands and Germany.

Despite the agreement, Canadian shipments to the United States, over the year as a whole, hit a new record as Canadian producers supplied 34% of the United States sawn softwood needs. Actual sales to the United States last year were a record high 42.0 million m^3, 17% over the quota which took effect on 1 April 1996. Sufficiently high sawnwood prices allowed the special addition of 0.2 million m^3 to be added duty-free to the quota. In fact, the first quarter of the agreement recorded higher than normal sales in anticipation of the trade restrictions.

Another result of the Agreement was 1.5% more offshore shipments of Canadian sawnwood. Overseas shipments increased slightly from 7.9 million m^3 to 8.0 million m^3. Exports to Japan surged 9.1% to 6.5 million m^3, from 5.9 million m^3 in 1995. However shipments to Europe fell considerably, by 28.9%, from 0.9 million m^3 to 0.6 million m^3. Shipments to the United Kingdom fell 40.6%, from 0.5 million m^3 to 0.3 million m^3.

Faced with these quotas, Canadian sawnwood producers are investing in added-value processing to turn framing wood into higher valued products without quotas. For example sawmills are now producing machine stress rated (MSR) sawnwood, finger-jointed stock and secondary products. Promotional campaigns in Quebec are targeted at non-traditional markets, such as the United States West, Middle East and North Africa and Asia.

What is the continuing controversy? Controversies exist regarding: 1. allocation of quotas between prices and between mills; 2. higher housing costs leading to a loss of market share for timber; and 3. confusion/distortion/inefficiency in the market place.

Several large Québec-based softwood sawn softwood companies who export to the United States have filed suit in Federal Court of Canada asking for an order to force the trade minister to recalculate the quotas of softwood that each province can export.

In November 1996, the United States National Lumber and Building Material Dealers Association saying that, "the agreement has had a crippling effect on home buyers and consumers," requested the quota for duty-free sawnwood be raised to the record 1995 level. The United States National Association of Homebuilders was urging in early 1997 that the Softwood Lumber Agreement be renegotiated because it was creating havoc in sawn softwood markets and increasing the price of new housing costs by $2000 (other estimates were for $3000 for a typical 2000 square foot (186 m^2) house). In mid 1997, legislation was introduced into the United States Congress to reverse the Agreement.

Sources of North American sawn softwood. Sawn softwood production at western United States mills in 1996 was 37.0 million m^3, the second consecutive increase in production in the last 9 years (graph 16). The United States South sawnwood production hit a recent record of 36.0 million m^3 in 1996 spurred on by historically high prices (graph 17). (The record high of 38.4 million m^3 was set in 1909.) The Southern Forest Products Association's forecast is for a slight decline in the next few years.

Canada produced 61.9 million m^3 of sawnwood in 1996, with about 950,000 m^3 going to Europe. Over 50% of the production was from British Columbia (graph 18).

In Canada, net earnings from all forest products operations fell by more than 60% to US $1.9 billion in 1996, from a record US $5.6 billion in 1995. The major reason was the record price levels and high demand for pulp, paper and solid wood products in 1995, compared to the price and demand collapse in early 1996. The change in earnings was accentuated by the wide swings in consumers inventory levels, i.e. a build-up in 1995 to hedge against shortages and future price increases, and a draw down at the end of 1995 and early 1996.

In 1996 Japan had authorized use of sawnwood graded and stamped under the United States Western Wood Products Association standards. As from January 1997, Japan accepted all North American grade marks for sawnwood used to build American-style houses. Previously only 80 United States sawmills had approval to grade stamp with the Japanese Agricultural Standard (JAS) stamp.

Not only are more and more sawnwood shipments going to Japan, but increasingly sawnwood is being shipped from Japanese-owned plants, in Europe, Canada and elsewhere. For example, a Japanese building materials company recently completed a sawmill in Finland that will be Japanese export-oriented.

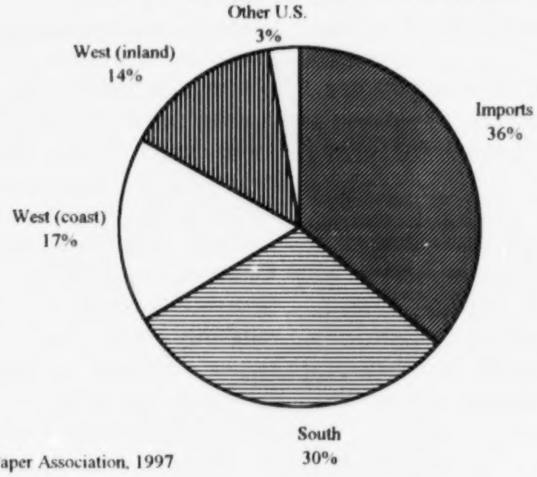
In an effort to expand markets for wood in construction, the Oregon (United States) State Building Code was amended by the City of Portland to allow five-story wood-frame construction. Seattle was the first United States city to approve wood framing for buildings higher than four stories. Using wood framing in a five-story apartment or condominium could save 15% of the constructions costs (or about $5000 per apartment) according to the *Forest Products Journal*.

Substitutes for sawnwood. Both the Swedish Wood Exporters Association and *Widman's World Wood Review* blame the volatility of sawnwood prices for the increasing substitution by both engineered wood products and panels, as well as non-wood substitutes like PVC plastic, steel and aluminum. According to *Widman's*, a 100-home housing site in California will have 25% steel-framed houses which will sell at the same price as wood-framed construction. *Widman's* states that 95,000 houses, or 6% of all housing starts were built with steel studs in 1996. The steel industry's nation-wide goal is a 25% market share by 2000.

According to the National Association of Homebuilders, when sawnwood reaches $450 per MBF delivered, steel becomes a viable alternative. In mid 1997, it was near this level.

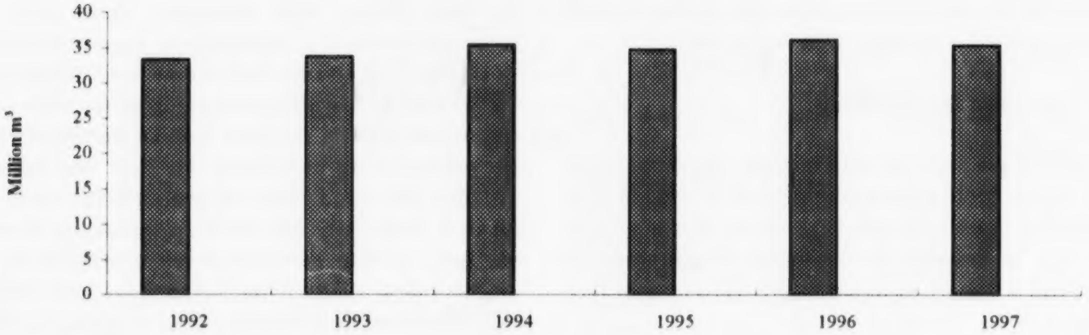
The promotion of substitutes for wood is aggressive. In the United States the steel industry calls itself "environmentally friendly" because it has an overall recycling rate of over 65% thereby "contributing to a sustainable environment" according to the International Iron and Steel Institute. Promotions of the steel industry cite advantages like cost, straightness, dimensional stability, lightness, noncombustible, insect resistant and energy efficient. Needless to say, some of these claims are disputed by the wood products industry.

Graph 16
United States sources of sawn softwood in 1996



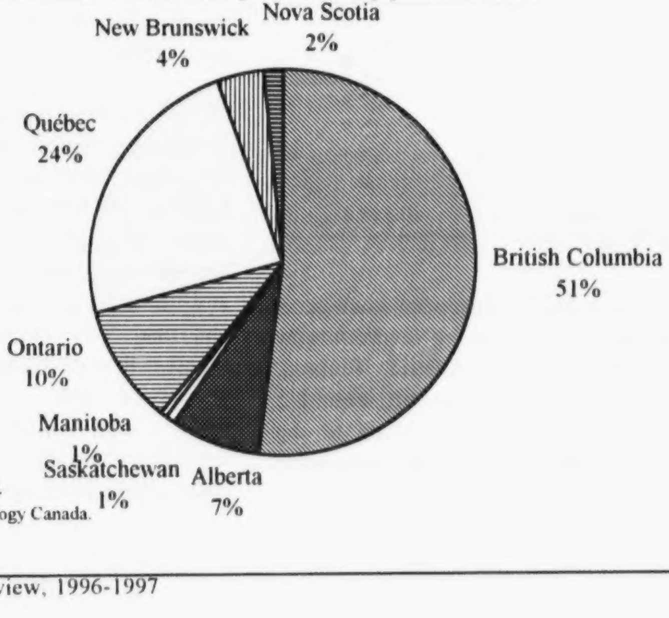
Source: American Forest and Paper Association, 1997

Graph 17
United States South sawnwood production, 1992 to 1997



Source (including 1997 forecast): Southern Forest Products Association

Graph 18
Canadian sawnwood* production by province, 1996



* includes 1% non-coniferous sawnwood.

Source: Industry, Science and Technology Canada.

America is not alone as the Australian new housing constructions were 12% steel-framed in 1996 according to the National Association of Steel Housing (NASH). This is a rapid increase from a 3% market share in 1993. NASH forecasts increased still framing as a highly promoted campaign continues, modifications to regulations are accepted and more craftsmen are trained.

Substitution is also occurring in window and door markets. In Europe the window market is currently about equally divided between wood, aluminum and plastic. However extreme differences exist between countries, for example Norway has the highest percentage of wooden windows, 69%, and Portugal the lowest, 5% according to *Verband der Fenster- und Fasadenhersteller*. The change has been rapid: in the last 20 years the wooden window market share has fallen from 70 to 30% in France according to research by the Swedish Wood Exporters Association. The Joint FAO/ECE Team of Public Relations Specialists in the Forest and Forest Industries Sector has undertaken a project to analyze the promotions of substitute materials in traditional wood markets.

(v) European developments

Difficult sawnwood market conditions in Europe during 1996 prompted exporters to expand into the *Japanese market* (graph 19). (Note that a special section (F) is devoted to the Japan forest products markets and it has by necessity some overlap with this section.)

Japanese imports of coniferous sawnwood from Europe
1995-1997

	1995	1996	% change 1996-1995	1997 (1Q)
Norway	31	55	77.4	14.5
Sweden	209	350	67.5	198.0
Germany	54	32	-40.7	24.9
Finland	366	448	22.4	177.8
Austria	157	285	81.5	119.7
Other European	15	25	66.7	13.2
Total	832	1195	43.6	548.3

Source: *Japan Lumber Journal*, 1997

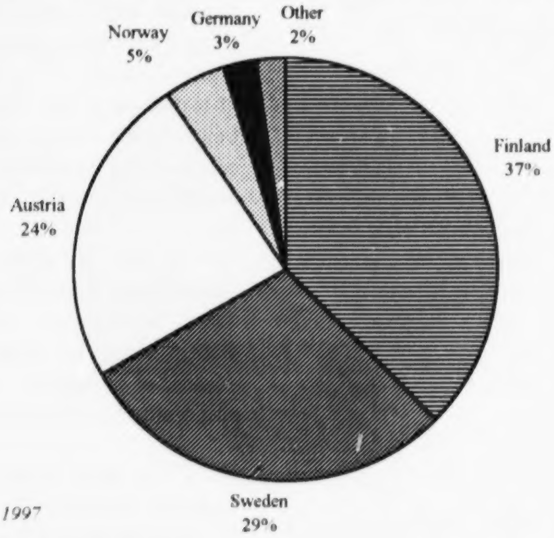
The Japanese demand for European sawnwood is increasing and is the fastest growing market sector for Europe. In 1997, together Austria, Finland, Germany, Norway and Sweden will export around 2 million m^3 of sawnwood to Japan according to the Japanese Ministry of Finance (20% of all sawnwood imports).

Imports of European sawnwood are poised to continue for several reasons including Japan's strong wood culture and need for imported sawnwood (and conversely a decreasing dependence on logs for the domestic manufacturing of sawnwood and panels). Another incentive is the greater profitability in Japanese sales due to higher prices. Some companies are expanding to higher value-added products where Europeans have experience and production capabilities. Japanese importers cite that other advantages of European sawnwood are its quality and machinability (presumably because it is kiln dried), its delivery reliability and its competitive price (possibly because of certain countries' exchange rates). Following their success in Japan, Swedish exporters are now making inroads into Taiwan and the Peoples Republic of China.

Of the Nordic sawnwood imported by Japan, 52% is for house framing, 28% is glulam stock, 17% is heavier beams or posts and 2 to 3% is 3- or 5-ply LVL. As seen by the Japanese, the advantages of Nordic wood, of which most is spruce and fir (whitewood) are its light colour, high durability, fine, close grain, precision machining, especially in fingerjointed glulam stock and kiln drying, thus more dimensionally stable than the green sawnwood imported from other regions. One would quickly question the transportation distance, but remembering that Japan is a huge net exporter of containerized goods and automobiles, the back haul to Japan is less costly and therefore European sawnwood has been able to be competitive in price despite the long shipping distance (the freight cost from Sweden to Japan cubic metre is equivalent to shipping to southern Europe). With more and more ships sailing to Japan, the delivery times are being cut, resulting in shorter delivery times. *Japan Lumber Journal* cited the current 6 to 7 month gap between order and delivery as a problem because it necessitated costly warehousing in Japan in order to provide just-in-time delivery to customers.

Finland exported some 448,000 m^3 of sawn whitewood (spruce and fir) to Japan in 1996, up by 22% from 1995 (conversely log exports decreased by 62% to 149,000 in 1996). They are also exporting some value-added products like glulam beams and glulam stock and joinery products including windows and doors. Finland has exported log houses to Japan and now Swedish house manufacturers have joined together to export prefabricated houses. Distribution of sawnwood and value-added products *direct* to prefabricated (factory-built) housing constructors in Japan has the possibility of subverting traditional, rigid trade channels in Japan.

Graph 19
Japanese coniferous sawnwood imports from Europe, 1996



Source: *Japan Lumber Journal, 1997*

Austrian sawmillers exported 286,000 m^3 to Japan and according to the Austrian Trade Commissioner at a May 1997 trade mission to Japan, the sawnwood exports to Japan in 1997 would reach 400,000 m^3. Austria's main markets are still Italy and Germany, but the growing exports to Japan have helped alleviate European market swings. Austrian sawnwood is marketed into Japan and some other export markets with a new "OK!" label indicating that the timber is from Austria and that it is natural and "controlled".

As of April 1997, the Japanese Ministry of Finance forecast for greatly increased European shipments to Japan looked on track, but a general malaise in the oversupplied market was setting in and the prediction of 2 million m^3 may be optimistic.

Sweden stood out in 1996 as one of the few European countries that increased exports in 1996.

Swedish exports by destination*, 1995-1996
(1000 m^3)

	1995	1996	% change 1996/1995
United Kingdom	2200	2613	18.8
Germany	1659	1692	2.0
Denmark	1223	1236	1.1
Netherlands	908	1023	12.7
Norway	605	609	0.7
France	468	429	-8.3
Spain	411	424	3.2
Italy	350	342	-2.3
Greece	256	222	-13.3
Ireland	184	191	3.8
Belgium	129	180	39.5
Switzerland	44	27	-38.6
Other Europe	159	119	-25.2
Japan	222	440	98.2
Other	1599	1517	-5.1
Total	10417	11064	6.1

*Note: Totals do not match exactly statistics in the earlier table because of different information sources.
Source: Swedish Wood Exporters' Association

After April 1997, i.e. 4 months into 1997, Swedish sales and exports of coniferous sawnwood were at 5.0 million m^3, a 5.6% increase over 1996, according to the Swedish Wood Exporters' Association.

Finnish spruce, pine and fir sawnwood exports*
in 1995 and 1996
(1000 m^3)

	1995	1996	% change 1996/1995
United Kingdom	1220	1350	10.7
Germany	1050	840	-20.0
Netherlands	830	700	-15.7
France	680	740	8.8
Denmark	640	610	-4.7
Italy	260	250	-3.9
Belgium	185	190	2.7
Ireland	130	135	3.9
Greece	120	110	-8.3
Spain	100	95	-5.0
Sweden	65	45	-30.8
Switzerland	55	50	-9.1
Other Europe	140	165	17.9
Japan	361	464	28.4
Other	1492	1564	4.8
Total	7328	7308	-0.3

*Note: Totals do not match exactly statistics in the earlier table because of different information sources.
Source: Finnish National Board of Customs.

After April 1997, i.e. the first 4 months of 1997, Finnish sales of sawn and planed softwood were at 3.7 million m³, a 5.4% increase over 1996 according to the Finnish Forest Industries Federation.

The crisis in the pulp and paper sector in 1996 had significant ramifications on the European sawnwood sector. Since Nordic sawmills are often well integrated with paper mills, the sawmills considerably reduced production when the market for chips slacked off. As a consequence the stock of sawnwood was strongly reduced, even though the demand from United Kingdom and Japan stayed strong.

The European Commission imposed provisional anti-dumping duties on wood pallets from Poland. The pallet exporters will be required to pay a 10.6% duty, although some 30 firms made "price undertakings" and do not have to pay the duty and an additional 40 firms who cooperated in the EC investigation will only pay a duty of 6.3%. The EC said that the volume of Polish pallets exported to the EU almost doubled between 1991 and 1994 and that their market share increased over this same time period from 5.7% to 10.6%. Imported pallet prices fell by 26% from 1991 to 1994. The Commission cited the need to protect small- to medium-sized EU companies because production had declined 6.6% from 2.8 to 2.6 million tonnes, capacity utilization had dropped from 91 to 86% and employment had declined 14%.

A new grading system for spruce and pine sawnwood, called "Nordic Wood" has been implemented and a new grading "Blue Book" has replaced the traditional "Green Book." Finland, Norway and Sweden developed the new system to simplify, to provide uniformity and to respond to end-market needs. The updated grading system calls unsorted (U/S) as "A", fifths as "B", sixths as "C" and below grade sawnwood as "D". Currently sawnwood continues to be traded under both books, but universal adoption of the Blue Book is anticipated.

The Swedish Wood Exporters Association successfully achieved accreditation through the United States West Coast Lumber Inspection Bureau to grade stamp some of their member mills sawnwood to American Lumber Standards. Significant trial shipments have been sent.

In early 1997 the demand for sawn softwood from the Netherlands and Germany was up from 1996. Swedish exporters benefited from the 15% rise in the value of the dollar from November 1996 to March 1997. Since most overseas sales are conducted in dollars, the Swedish sawmillers became more competitive.

The Spring 1997 Organization of European Sawmillers (OES) meeting summarized the European sawmillers' situation rather optimistically, saying that many sawmills are running at full capacity and that strong sales are keeping sawmill stocks low. The OES said that 1995 was the reprise after many difficult years. But the beginning of 1996 was back down as prices fell with the fall in demand. As sawmill stocks were depleted (after being run up in latter 1995), and demand for imported sawnwood returned principally from the United Kingdom, prices rose and production increased. In 1997, the market demand in Europe has returned and the domestic Nordic markets are rising strongly. The United Kingdom construction levels are good and the sales to Japan are increasing. At the same time the competition from Canadian and Russian exports to Europe is at a historical low.

At their Summer 1997 meeting the OES said that log supply had stabilized as rising prices brought more logs to the mills. Sawnwood stocks, especially pine and fir are relatively low. The first half of 1997 was seen as difficult for European sawmillers due to the lack of necessary markets for pulp chips and competition from lower-priced sawnwood from eastern Europe (the volumes imported into western Europe are considerably below those before the collapse of the USSR).

The Finnish domestic consumption has regained momentum and is forecast to increase about 7% in 1997, or at a level of 2.7 million m^3. But like all European countries, the sawmills continue to be constrained by weak markets for chips.

(vi) Russian Federation developments

Rosexportles, a joint stock company, is Russia's largest timber exporter. Formerly known as Exportles, it had a monopolistic control of exports of forest products. Although it still plays a significant role in log and sawn timber exports, there are currently many more intermediaries involved, adding to an already confused situation.

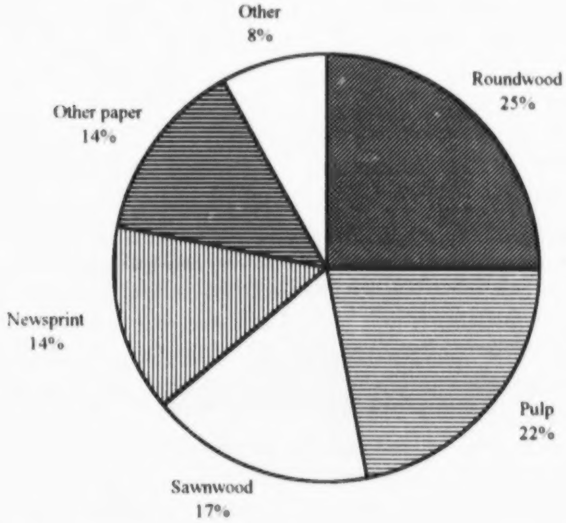
The State Committee for the timber, pulp and paper and woodworking industry "Goskomlesprom" was disbanded by presidential decree in March 1997. Its functions were transferred to a department in the Ministry of Economy.

An official from the former organization forecast that harvests would be reduced by 9% in 1997 from 1996 levels. Sales channels have become very disjointed and negotiations are often difficult and slow to evolve.

While we are concentrating on Russian sawnwood exports, it should be kept in mind that they are but 17% of Russia's total forest products exports (graph 20).

Graph 20

Russian forest products exports breakdown by volume, 1996



Source: The State Customs Committee of Russia

C. Sawn hardwood

(i) Consumption

Sawn hardwood (non-coniferous) apparent consumption fell in *Europe* in 1996, by 7.8% as the demand for furniture, cabinets, moulding and millwork slowed with the decrease in housing (table 13 and graph 21). Against the direction of the grain, a few countries showed increases, especially Belgium, the United Kingdom and the Czech Republic (annex table 2). Of the countries which reduced consumption, Italy's 11.5% decrease to 2.4 million m^3 was linked to tight economic conditions, currency appreciation affecting import purchases and destocking in light of weakening demand for exported Italian-made furniture.

Many countries in transition to market economies had reduced sawnwood consumption in part due to interruptions in sawlog supplies from former state-controlled lands are being restituted back to private owners. In Latvia and Lithuania, the temporary solution has been to import logs and even some sawnwood from neighboring countries.

In the *Russian Federation*, following the 38% drop in apparent consumption from 1994 to 1995, there was yet another fall in 1996, by 18.7%.

Table 13

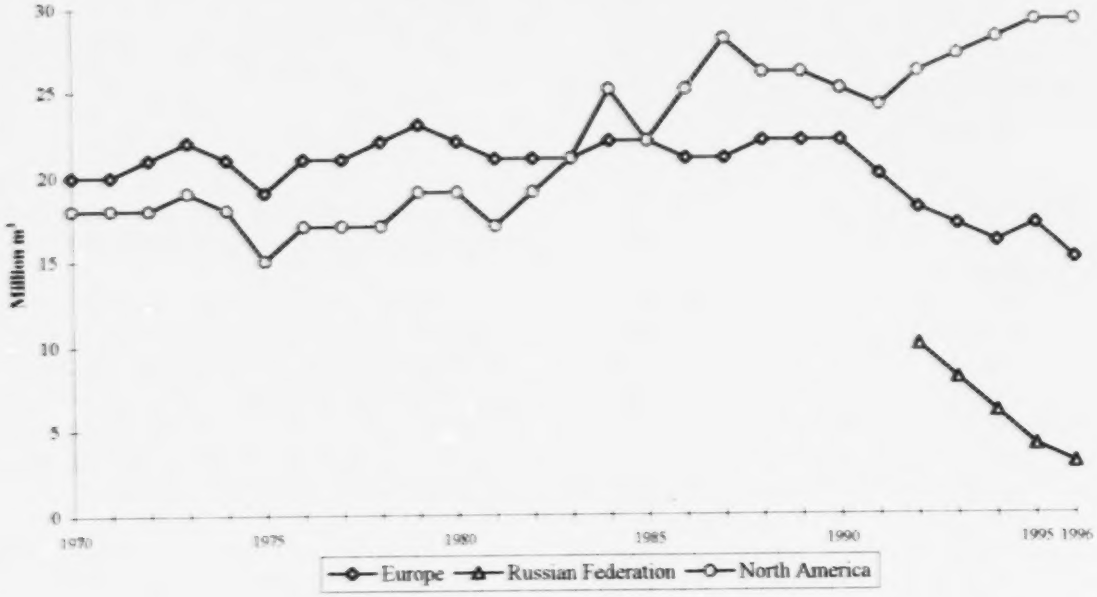
Sawn hardwood balance in Europe, the Russian Federation and North America, 1992 to 1996
(million m3)

	1992	1993	1994	1995	1996 (prelim.)	Timber Committee estimates a/ for 1996	Timber Committee estimates a/ for 1997
EUROPE							
Production	14.03	13.29	13.02	13.31	12.64	13.01	13.08
Imports	7.21	6.44	6.40	6.67	5.97	6.50	6.55
Exports	3.27	3.09	3.28	3.21	3.14	3.18	3.32
Net trade b/	-3.94	-3.35	-3.12	-3.46	-2.83	-3.32	-3.23
Apparent consumption	17.97	16.64	16.14	16.77	15.47	16.33	16.31
RUSSIAN FEDERATION							
Production	9.68	8.09	6.08	3.98	3.24	3.36	3.66
Imports	-	0.01	0.01	0.01	0.01	0.01	0.01
Exports	0.06	0.04	0.07	0.27	0.23	0.25	0.25
Net trade b/	0.06	0.03	0.06	0.26	0.22	0.24	0.24
Apparent consumption	9.62	8.06	6.02	3.72	3.02	3.12	3.42
NORTH AMERICA							
Production	27.26	28.90	30.06	30.44	30.55	31.30	31.50
Imports	1.24	1.47	1.59	1.59	1.87	1.63	1.63
Exports	2.62	2.92	3.17	3.26	3.54	3.30	3.30
Net trade b/	1.38	1.45	1.58	1.67	1.67	1.67	1.67
Apparent consumption	25.88	27.45	28.48	28.77	28.88	29.63	29.83

a/ At September 1996 session. The Committee's estimates for 1996 and 1997 have been adjusted to make them comparable with the historical (actual) data for 1992-1996.

b/ + = net exports; - = net imports.

Graph 21
Consumption of sawn hardwood, 1970 to 1996



There are continuing complications during the transition process which has dampened domestic demand for furniture and construction-related sawn hardwood needs and severely constrained production. As in coniferous sawnwood, there is a possibility that some local consumption of sawn hardwood is not reported, for example if it is transformed into other products.

In the *United States* the strength of the housing market brought increased demand for fine-quality hardwoods for furnishings and fixtures, moulding and millwork and consumption rose 1.3% to 27.9 million m^3. Species preferences are changing from darker colours, with more pronounced grains like red oak, to lighter-coloured hard and soft maples.

The market for low-grade hardwood for sleepers ("railroad ties" in American terminology) is strong and because of the large contracts from the major railroads, the market will be viable for the next two years. While the tie market is strong in North America, the Organization of European Sawmillers cited continued weakness in the European sleeper market in 1997. According to the Société Nationale des Chemins de Fer Français (SNCF, the French national railroad authority), 80 to 90% of sleepers are cement, requiring 1.2 to 1.6 million new units per year. Still in France, 500,000, plus or minus 15%, wooden sleepers will be purchased annually by the SNCF during the next 5 years, an improvement over past years. The SNCF buys mostly untreated oak, which it treats with creosote, but they are investigating the possibility of purchasing beech and pine sleepers too.

The greatest volume usage of sawn hardwood in the United States is for pallets, and this important low-grade sawnwood market has rebounded with the strong economy. According to several forest products marketing specialists in the United States, the demand for hardwood chips for pulp manufacture has regained satisfactory strength in early 1997, thus removing an important financial constraint on sawmilling.

In *Canada*, however, despite increased housing construction in 1996, consumption of sawn hardwood dropped by 19.2% back to a level near that of 1994 (about 1 million m^3).

(ii) Sawn hardwood production

European production of sawn hardwood fell about 5% in 1996 according to the countries reporting (table 14). Assuming that the other major producers (especially France for which production statistics were not received) had followed the trend of those countries reporting, then the drop in European production could have been even greater. Turkey's production of sawnwood rose from 1995, by 4.4% to 1.85 million m^3 (precise figure received after the table was prepared). Austria's production increased to 290,000 m^3 (precise figure received after the table was prepared).

Romania's production continued to fall and is now over 50% lower than 3 years ago due to a combination of problems of the transition process, including interruptions of sawlog supplies to sawmills as a result of forest land restitution to original owners. Romania's hardwood resource was apparently overcut during the former economic region. In order to restore a balance, the production of softwood sawnwood is being increased. In Poland, a 31% rise in 1995, production of sawn hardwood fell 25.7%, back to the level of 1994.

Lithuania's production of sawn hardwood increased as they are importing oak and beech sawlogs from Ukraine, Belarus and the Kaliningrad Region of Russia. Based on reports given during the Timber Committee Baltic Countries Forest and Forest Industries Study Tour held in May 1997, the Lithuanian sawmillers and the government representatives forecast the growing domestic and export demand for sawn hardwood would lead to increased production as capacity allows.

According to the June, 1997 meeting of the Organization of European Sawmillers, the hardwood sawmilling industry profits dropped steeply by 15% in 1996. Although profit margins are said to remain narrow in 1997 as log costs are still high, the OES forecasts profits could regain 1995 levels, partly due to rising Asian demand for logs and sawnwood, especially beech.

United States production of 29.7 million m^3 was but a 1% gain over 1995, but at these record levels sawmills are running multiple shifts. There is both strong demand driven by the export markets and the domestic housing market and repair and remodeling markets for flooring, moulding, millwork, cabinetry and furniture. Despite similar circumstances of increased housing and furnishing demand, Canada's sawn hardwood production fell by 17.5 percent in 1996, to 0.9 million m^3.

In the United States "green dimension" is a rapidly growing product (hardwood dimension is defected, cut-to-size parts for furniture, cabinets, etc). Sawnwood is defected before kiln drying, and then dried by conventional steam and dehumidification kilns

Table 14

Production of sawn hardwood, 1993 to 1996

	1993	1994	1995	1996 (prelim.)	Change 1995 to 1996	
					Volume	Percent
			(1000 m3)			(%)
EUROPE : of which :	13292	13018	13307	12644	-663	-5.0
France	2966	3000	3021	3021	...	...
Turkey	2062	1703	1829	1829	...	...
Germany	1164	1202	1180	1146	-34	-2.9
Italy	900	1000	1050	900	-150	-14.3
Poland	566	800	1050	780	-270	-25.7
Romania	1600	860	900	769	-131	-14.6
Spain	558	760	755	755	...	...
Croatia	553	474	478	484	6	1.3
Portugal	194	426	426	426	...	...
Belgium-Luxembourg	284	284	284	284	...	...
Czech Republic	255	230	270	270	...	...
Austria	225	256	252	252	...	...
Other countries	1965	2023	1812	1728	-84	-4.6
Russian Federation	8090	6080	3975	3240	-735	-18.5
Canada	1123	1002	1093	902	-191	-17.5
United States	27780	29054	29344	29650	306	1.0
North America	28903	30056	30437	30552	115	0.4

and also radio-frequency kilns. This eliminates drying of wood defects. Also defect-free white oak dimension parts are being exported to Japan where they are sliced into extremely thin veneer to be used as the face of flooring panels. This kind of operation is still not mainstream, but the some sawmill operators are finding ways to recover more sawnwood from the logs and to sell it for higher prices.

Production of sawn hardwood in Russia fell by 18.5% to 3.2 million m^3 in 1996 from the previous year, and was only one-third of the production in 1992. During the privatization process there is also the possibility that not all production volumes are being reported.

(iii) Trade of sawn hardwood--temperate zone

Unlike with sawn softwood, *Europe* is a net importer of sawn hardwood. However in 1996, as the export level remained fairly equal to 1995, the decrease in imports (by 10.6%) resulted in a decrease in the trade deficit. Exports from France, the largest exporter in Europe, were stable, but other countries exhibited a generally negative direction (table 15). For example the year 1996 was extremely difficult for German sawmillers as production and trade, both imports and exports, all fell and domestic consumption plummeted by over 10%. Similarly, Poland's consumption fell by over 27% and even though imports increased, they did not overcome the reduced production; exports also decreased, by 10.6% to a level of 220,000 m^3.

Spain was the one bright spot in the European trade, although it is not reflected in the accompanying tables since no official statistics were received. The Spanish Timber Importers' Association reported that imports of sawnwood and logs rose considerably in 1996, in line with improved economic performance. In 1996, red and white oak sawnwood imports rose 11% over the previous year to approximately 130,000 m^3. Primarily sourced from the United States (71%), France (15%) and Canada (about 7%), the majority (about 95%) is white oak. Beech sawnwood imports, mainly from France and Germany, fell 6%, coming to a volume approximately equal to oak.

Table 15

Exports and imports of sawn hardwood, 1993 to 1996

	1993	1994	1995	1996 (prelim.)	Change 1995 to 1996	
					Volume	Percent
			(1000 m3)			(%)
EXPORTS						
EUROPE : of which :	3092	3279	3214	3138	-76	-2.4
France	675	825	761	754	-7	-0.9
Croatia	581	405	402	402	...	...
Romania	178	290	252	331	79	31.3
Germany	296	312	320	278	-42	-13.1
Poland	234	178	246	220	-26	-10.6
Belgium-Luxembourg	95	171	139	158	19	14.0
Hungary	142	153	130	150	20	15.4
Austria	92	100	144	144	...	...
Slovenia	103	114	114	114	...	...
Netherlands	182	171	135	109	-26	-19.3
Other countries	515	561	571	478	-93	-16.3
Canada	647	803	769	850	81	10.5
United States	2275	2368	2495	2692	197	7.9
North America	2922	3171	3264	3542	278	8.5
IMPORTS						
EUROPE : of which :	6436	6397	6674	5965	-709	-10.6
Italy	1649	1739	1777	1576	-201	-11.3
Belgium-Luxembourg	946	602	532	634	101	19.0
Netherlands	785	705	631	612	-19	-3.0
United Kingdom	509	514	501	575	74	14.9
Germany	630	676	708	538	-170	-24.0
Spain	583	525	719	456	-263	-36.6
France	406	482	519	425	-94	-18.1
Austria	126	156	154	154	...	...
Czech Republic	60	110	136	149	13	9.6
Portugal	99	104	138	144	6	4.3
Other countries	643	784	859	703	-156	-18.2
Russian Federation	5	7	7	7	...	...
Canada	725	843	892	930	38	4.3
United States	740	742	698	936	238	34.1
North America	1465	1585	1590	1866	276	17.4
Japan	1791	1635	1635	1635	...	...

Half of Spanish doors are made from white oak, 26% from southern yellow pine and 2 percent from other wood species.

In 1996, *United States* sawn hardwood exports to all markets rose 7.9%, to 2.7 million m^3, an unexpectantly high level considering the rising strength of the dollar versus importer's currencies. The weak construction and associated hardwood demand in many European countries was offset by record housing construction in Japan and related hardwood demand. Simultaneously there was strong domestic demand for millwork and moulding and furniture (including cabinets), resulting from the high level of housing starts, which traditionally has shifted export volumes back to the domestic market. Perhaps export trade orientation and mechanisms are now ingrained sufficiently that rises in domestic needs will not affect export shipments.

One-third of the United States hardwood sawnwood exports were to Europe from 1987 to 1996. Over this 10-year period, the *volume* has risen by 41%, to 740,500 million m^3, and the *value* by 169%, to $467 million, according to USDA Foreign Agricultural Service's *Wood Products: International Trade and Foreign Markets*. Thus, significantly, according to the official statistics received, by *volume* European hardwood consumption is decreasing, but consumption has been increasing in *value* terms. Also hidden in this broad "European" category is that the greatest growth in imports of United States hardwoods has been by countries in central and eastern Europe.

In 1997, the high level of the appreciated dollar, the continued soft demand in Europe and the reduced demand in Japan could mean that United States exports have peaked. However, United States exports of hardwood sawnwood to Europe were up in the first quarter of 1997 by 12.2% in volume and 13.0% in value over the same quarter of 1996 according to the American Hardwood Export Council (AHEC).

Japan dominates United States sawn hardwood exports to Asia with 237,300 m^3, but substantial quantities are exported, in descending order by volume to: Taiwan, Hong Kong, Republic of Korea, Thailand, China, Malaysia, Indonesia, Singapore and the Philippines. Much of these sawnwood imports are used by the growing Asian furniture industry as these countries increase processing and exporting of higher value products. Canada is still the important sawn hardwood export destination for the United States as it consumes 21.7% by value and 32.3% by volume. On a crude unit price per cubic metre basis, without transportation, sawnwood exported to Canada costs $342, while to Japan it costs $404. Europe imports the highest grades of sawn hardwood and pays the highest prices, $630/unit, because of higher costs, including labour, to manufacture end products like furniture and millwork.

Canadian exports also increased in 1996, by 10.5% to 0.9 million m^3, however there is always some overlap between trade statistics with the United States since some wood is exported via Canadian ports when transhipping is less expensive.

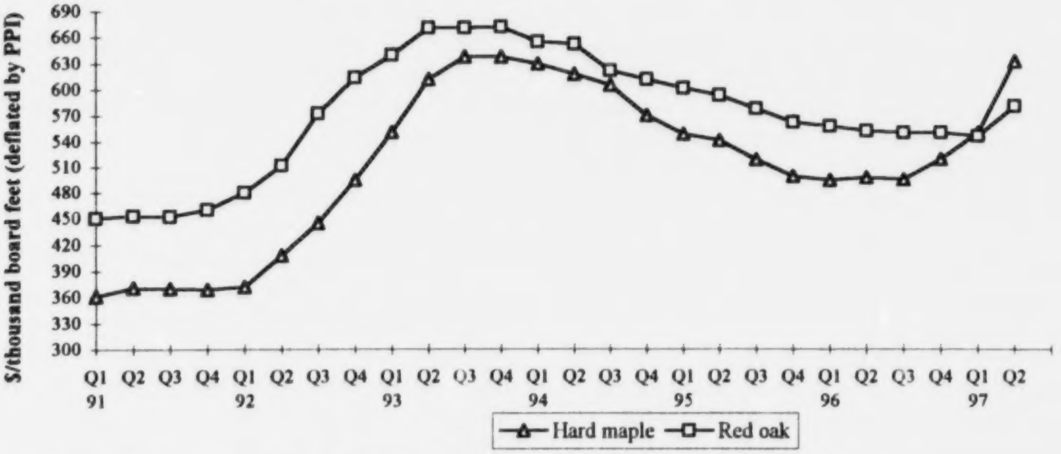
There continues to be a shift in *species preference* in both Europe and North America, and thus subsequently in those Asian markets which import sawnwood from the ECE region and then manufacture furniture for export back to the ECE region (with the exception of Japan which produces furniture mainly for its domestic market). For the past years there has been a strong demand for red oak, especially in the United States, which led to a price appreciation over the last 15 years with a spike in 1992 to 1993 (graph 22). Part of the price rise in early 1997 was due to the inclement weather-induced, temporary log shortage mentioned earlier, which diminished log stocks and caused temporary shortages of sawnwood.

Since light-coloured woods have grown in popularity over the last 2 years, their price has also increased--so much that now in mid 1997 the price for the same grades shows hard maple considerably above red oak. Only by looking at a longer price series can it be seen that back in the 1960s, hard maple was popular and higher priced than oak (graph 23). Then, like now, it was not only the domestic demand which drove up the price of maple, but the price was boosted by an incessant demand from Japan for maple for construction of bowling alleys and bowling pins for Japan. The current high demand and price of light-coloured species like cherry and hard maple has resulted in a rising demand for their substitutes, like soft maple and yellow birch.

Interzum 97, the large international wood products fair held biannually in Cologne, Germany, confirmed the trends towards light-coloured hardwoods. Beech, maple, alder, birch and ash were *à la mode* in furniture, millwork and also as synthetic overlays for panels. New techniques now allow polypropylene overlays with wood patterns, often incorporating "character marks" or natural defects, in place of formerly used PVC overlays. These imitation wood overlays were most often replicating light-coloured species at Interzum 97.

Graph 22

United States sawn hardwood prices*, 1991-1997

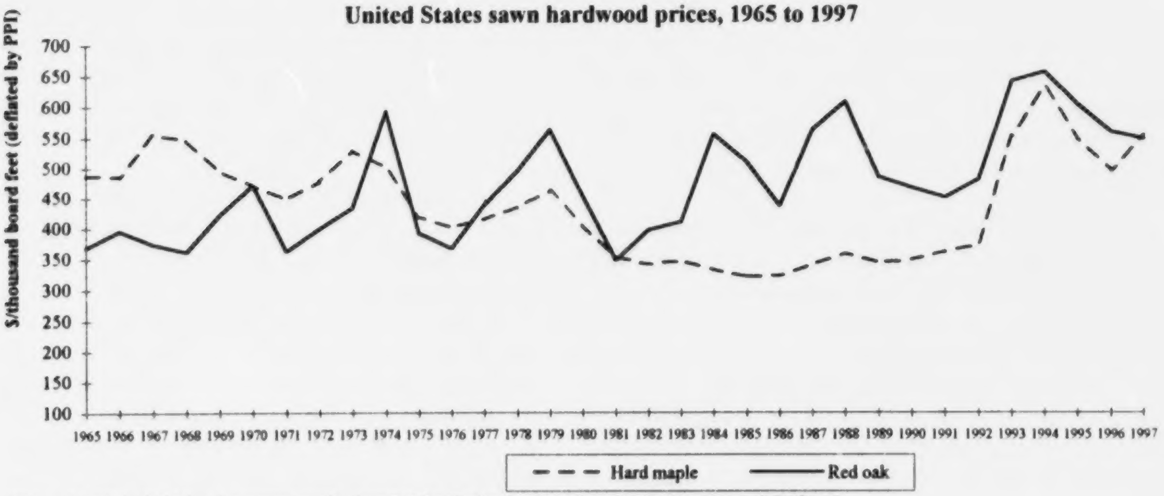


*Prices for 4/4 inch thick, 1 common grade, Appalachian Region hard maple and red oak sawnwood. Deflated by the United States producer price index with a 1982 base.

Source: *Hardwood Market Report*

Graph 23

United States sawn hardwood prices, 1965 to 1997

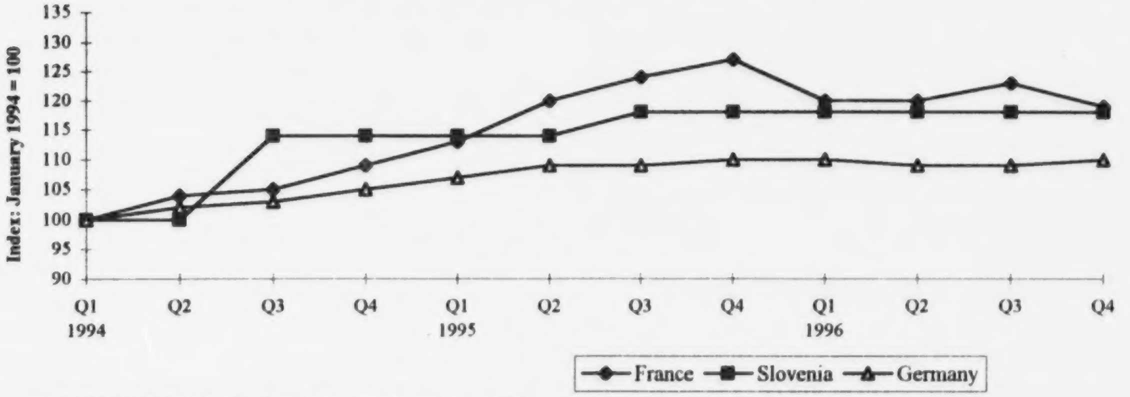


*Prices for 4/4 inch thickn, 1 common grade, Appalachian Region hard maple and red oak sawnwood. Deflated by the United States producer price index with a 1982 base.

Source: *Hardwood Market Report*

Graph 24

European beech sawnwood price indices, 1994-1996



Source: UN-ECE/FAO Timber Bulletin, *Forest Products Prices*, 1997

Sawn hardwood *prices* have been rising in Europe too, especially for beech in late 1996 through mid 1997 (graph 24). Beech sawnwood prices have increased due to rising European and Asian demand. Imported sawn hardwood into Europe has been getting more expensive with the appreciation of the dollar versus European currencies (graph 25). In France the price for oak fell by 5 to 19% in 1996, depending on the grade. Reasons cited in *L'Écho de Bois* for the price decline were competition from lower priced imports, a weak housing market and PVC substitution in window manufacturing.

Currently in mid 1997, white oak is receiving strong demand only for wine barrel manufacturing in France and Spain. According to AHEC, white oak barrels can have only a 5- to 10-year life, depending on the oak taste to be imparted to the wine.

As an aside, the demand for light-coloured furniture coupled with environmental consciousness, led to the production in the United States of some white fir furniture manufactured from FSC-certified timber from Collins Pines in California. While the upgrade of construction sawnwood to furniture was economically promising, significant manufacturing difficulties subsequently ended this small market niche.

In 1997 some new services to facilitate sawn hardwood trade were launched on the World Wide Web (WWW). One of these commercial websites provide a database where hardwood buyers can request the availability of sawnwood by specifying the species, grade, thickness and other specifications desired. The database responds with a list of sellers, a description of the quantities and qualities available and their e-mail address. The buyer can then electronically request a price quote or other information. The cost of the services are presently covered by advertisers who have direct links from the website back to their respective home pages.

The *1997 outlook* according to the Timber Committee forecasts in September 1996 is for sawn hardwood exports to increase in Europe and the former USSR, by about 5% and 4% respectively, while North American exports and imports were forecast to remain at 1996 levels. European imports were forecast to rise in 1997, by about 1% for both temperate species (to 4.3 million m^3) and for tropical species (to 2.4 million m^3).

(iv) Hardwood timber trade--tropical zone

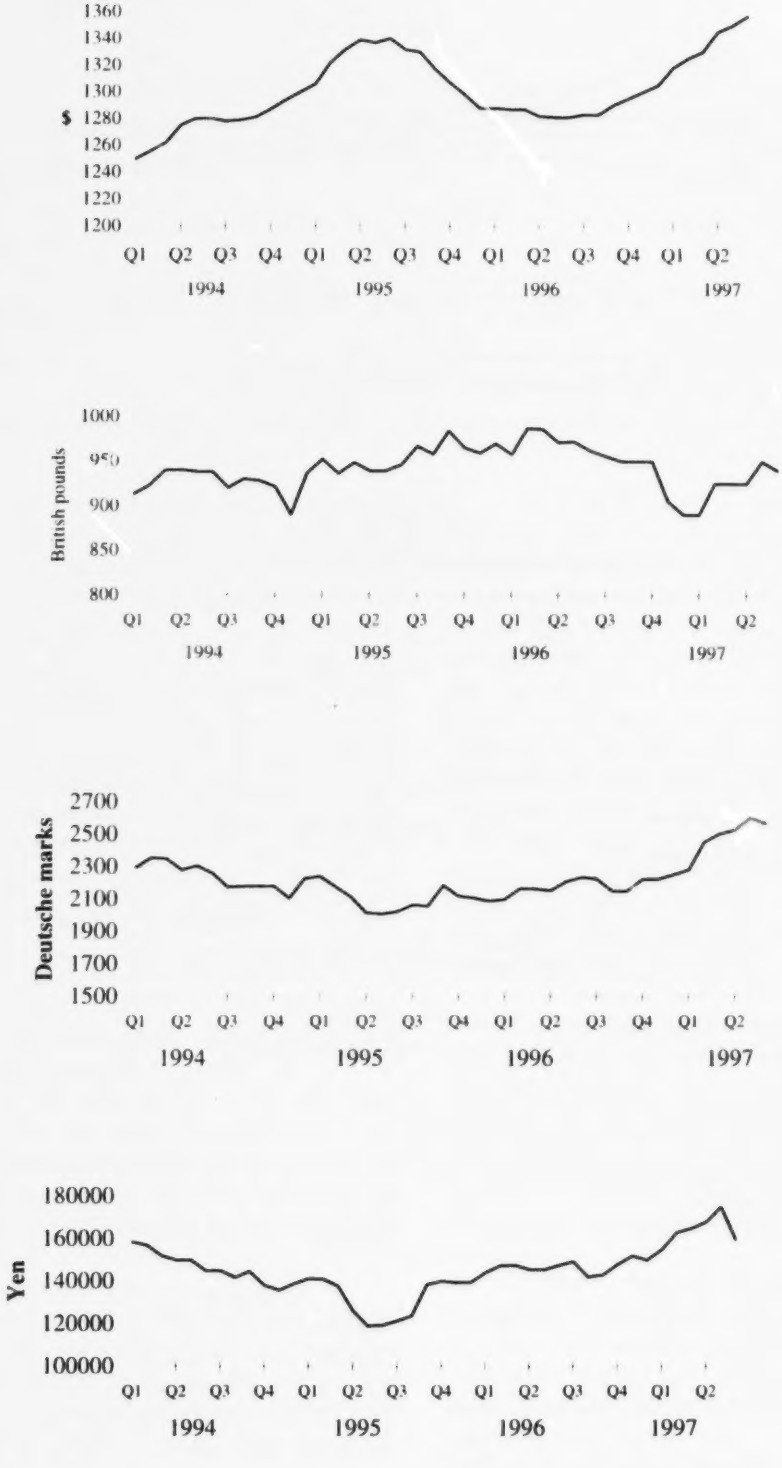
This section expands from solely sawnwood and covers additional tropical timber, i.e. logs, veneer, plywood and further processed wood products from the perspective of the ECE region. Some of the following information was graciously supplied by the International Tropical Timber Organization (ITTO) secretariat. Note that Japan is the focus of the last section (F) in this chapter, and thus features less prominently here.

European imports of tropical *roundwood* fell by 1.5% in 1996, re-establishing the declining trend through the 1990s, which had been interrupted by a 3% increase in 1995. Because the Harmonized System does not distinguish between sawlogs, veneer logs and pulp logs, this volume is an unknown mix of high quality veneer logs, sawlogs and low quality pulpwood. While the large jump from 2,000 to 48,000 m^3 from 1995 to 1996 in Sweden can be assumed to be eucalyptus pulpwood, the same cannot be said for France, which increased tropical roundwood imports by 30% to reach 619,000 m^3. The other large movement in the market was in Germany, where imports fell about 60% to reach the lowest level in recent history, 97,000 m^3. European tropical log buyers are facing more competition from Asian buyers, increasingly from China, for African logs. However this new demand has not yet seriously manifested itself in higher prices.

According to the ITTO, the European tropical timber trade in 1996, especially the traditional markets of Germany, United Kingdom, France and the Netherlands was quiet most of the year. Consumption decreased by 6.2% in volume for tropical logs, sawnwood, veneer and plywood together in the European Union in 1996. Still Europe remained the *second* largest consumer of tropical wood at 7.3 million m^3 while Japan is by far the largest consumer at 17.4 million m^3, down 1.7% from 1995 (graph 26).

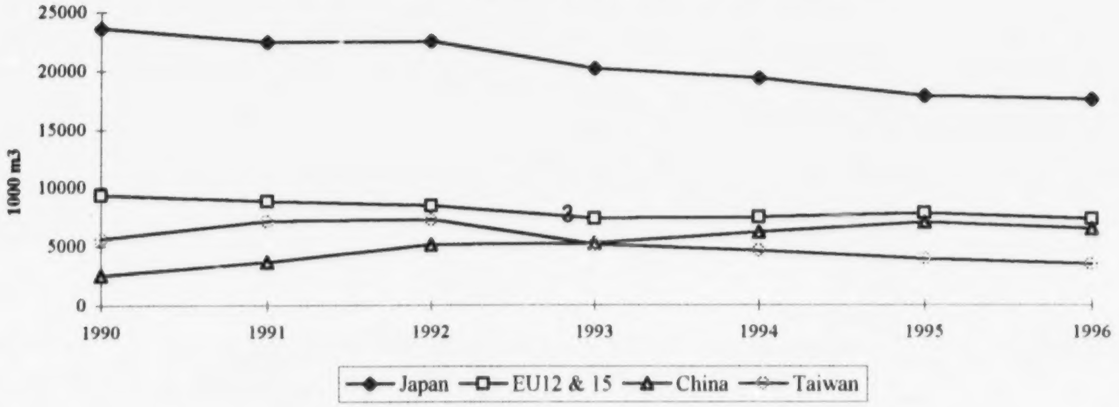
Europe is the largest consumer of tropical sawnwood and veneer. As shown below, in 1995 (the most current statistics), European Union tropical imports (with logs and plywood) increased 10.5% in *value*; however, imports rose only 3.6% in *volume* from 1994 (both based on EU 15). Thus in 1996, while consumption decreased in *volume*, it probably increased in *value*, especially if further processed wood products were included.

Graph 25
United States hardwood export price indices in dollars, British pounds, Deutche marks and Japanese yen, 1994 to 1997



Note: the indices are for a representive species mix of hardwood sawnwood and dimension exports for each country from the United States in 1993.
Source: *Hardwood Review Export*, 1997 and earlier.

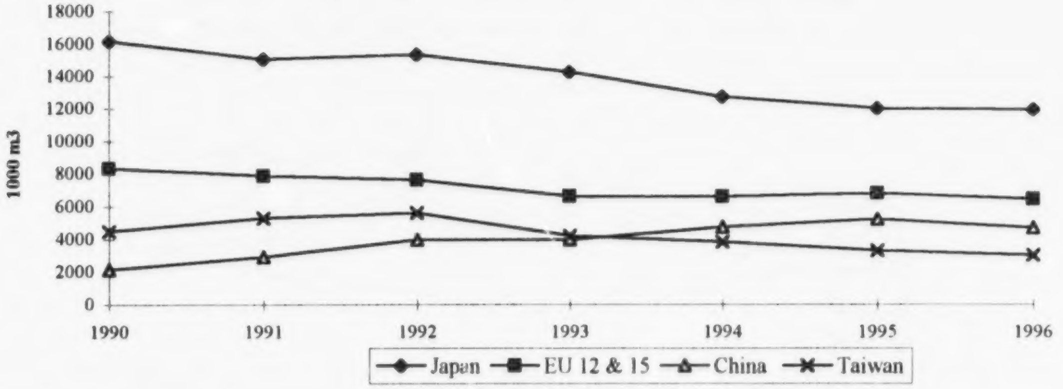
Graph 26
Consumption of tropical wood products*, 1990 to 1996



*Note: Tropical wood products here are logs, sawnwood, veneer and plywood together.

Source: ITTO *Annual Review and Assessment of the World Tropical Timber Situation, 1996,* 1997

Graph 27
Imports of tropical wood products*, 1990 to 1996



*Note: Tropical wood products here are logs, sawnwood, veneer and plywood together.

Source: ITTO *Annual Review and Assessment of the World Tropical Timber Situation, 1996,* (1997 and earlier)

Value of imports of tropical wood products *
($ million)

	1993	1994	1995	% change 1995/1994
Japan	5113	4490	4250	-5.3
EU 12 & 15	3041	2750	3038	10.5
China	909	1383	1439	4.0
Taiwan	1380	1325	1143	-13.7

* Tropical wood products: total of logs, sawnwood, veneer, plywood.

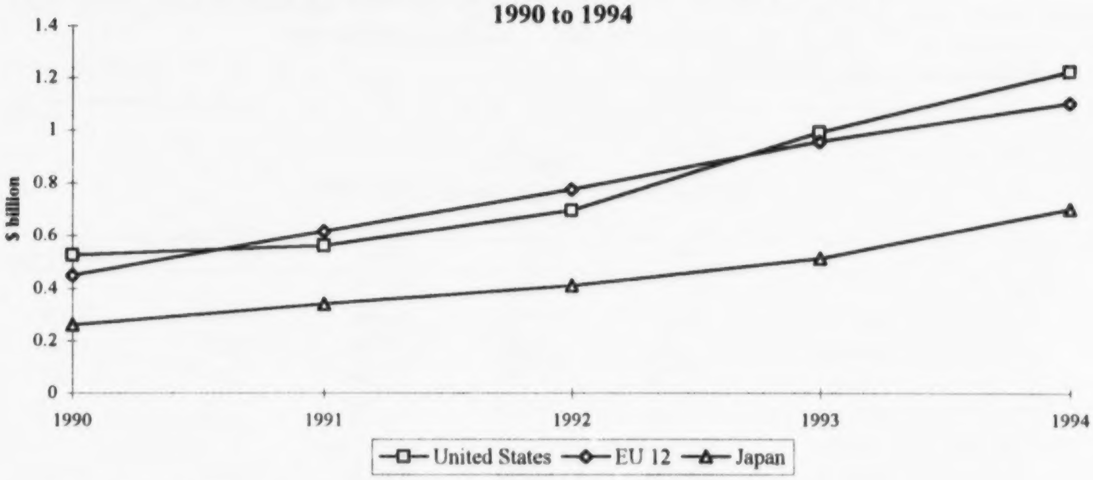
Source: ITTO *Annual Review and Assessment of the World Tropical Timber Situation*, 1996.

As shown in the graph, imports of tropical wood products fell in 1996 in the three largest importing countries and the European Union (graph 27).

Secondary processed wood products (SPWP) imported by the EU 12 in 1994 (the most current figures) were valued at $1.1 billion, ahead of the US $1.2 billion and ahead of Japan's $0.7 billion (graph 28). ITTO's SPWP classification includes added-valued products like furniture (70% of the trade value), millwork and mouldings, domestic and decorative products, packaging including pallets, casks and barrels and other manufactured products.

Graph 28

Secondary processed wood products exports from ITTO producer countries, 1990 to 1994



Source: ITTO *Annual Review and Assessment of the World Tropical Timber Situation, 1996*, 1997

Another way to visualize the tropical log trade is to analyze the exports of producer countries. Tropical *log exports* continue to fall in all tropical regions together, by 11.9% overall to a level about half of what it was in 1992 (table 16). While log production dropped almost 4% in 1996 (table 17), exports are being reduced as producer countries, especially in Asia, provide incentives for development of value-added processing facilities, including sawmills, panel mills and furniture plants. In addition, many tropical countries continue to dissuade log exports through taxes, tariffs and bans. Also demand is reduced from Japan due to their high labour and processing costs combined with increased softwood imports.

In the Asia Pacific Region, *log prices*, depending on the species, either fell slightly or were steady over the last 18 months (graph 29). Japan's decreased demand for housing in 1997 and their continuing reduction in domestic sawnwood and plywood manufacturing, is evidenced by the slight decline in log prices. Japan and Malaysia continue to diversify their raw material sources by importing logs from Africa and Latin America.

Sawnwood exports also fell (all regions combined), by 7.2%, although production decreased only 1.7%. This indicates that domestic consumption was constant, especially since some small quantities are imported by producer countries, but then sawnwood exports are only 18% of production.

In Europe, tropical *sawnwood prices* in general rose only slowly over the last 18 months, as low demand and adequate stocks in the United Kingdom and the Netherlands in 1996 put downward pressure on prices. But for better grades or higher-valued species, like Brazilian mahogany, the prices moved up (graph 30). In July 1996, a ban on cutting mahogany logs for export by the Brazilian government was announced, primarily to stop the export of illegally harvested logs. Subsequently in mid 1997 mahogany was proposed for listing on CITES Annex II listing, i.e. full protection from harvesting, but this proposal was rejected. Mahogany sawnwood continues to be available, but the concern is reflected in the rising price. Brazilian mahogany prices rose from $800/m^3 at the start of the ban in mid-1996 to $1020 by year end.

On lower volumes than sawnwood or plywood, *veneer exports* increased from Africa and Latin America/Caribbean. But due to a booming domestic furniture manufacturing requirements, veneer exports decreased from Asia Pacific, resulting in a worldwide decrease in tropical veneer exports of 2.8% in 1996 from 1995.

Plywood exports also fell, by 1.4% as tropical production dropped 3.6% in total, rising only in Africa to 230,000 m^3 in 1996, but at a much smaller volume than Asia Pacific (13.1 million m^3) or Latin America (mainly Brazil) (1.7 million m^3). Demand for tropical plywood from Japan was down in 1996 due to their increased imports and production of softwood plywood and substitution by composite panel products.

Tropical plywood prices from Brazil and Malaysia have been steady over the last 1.5 years (graph 31). In August 1996 the minimum price for Indonesian plywood, a benchmark for plywood price trends was raised to 7% above the INDO 1996 list price, the basis for price negotiations.

In total, tropical timber producers did not increase domestic consumption (with the exception of veneer the smallest category by volume) from 1995 to 1996, but rather exported an even greater share of their decreased production.

Table 16
Tropical forest products exports[1], 1992-1996
(thousand m^3)

		1992	1993	1994	1995	1996
Africa						
	logs	2,907	3,553	4,181	3,911	3,733
	sawnwood	1,081	1,020	1,309	1,332	1,245
	veneer	216	204	246	247	285
	plywood	66	55	42	75	53
Asia Pacific						
	logs	21,343	13,323	12,277	11,020	9,431
	sawnwood	6,308	6,185	5,409	5,068	4,579
	veneer	825	754	678	656	579
	plywood	11,552	12,137	10,382	11,600	11,459
Latin American/Caribbean						
	logs	21	33	49	38	21
	sawnwood	733	975	1,763	1,488	1,497
	veneer	116	200	134	109	120
	plywood	550	714	801	729	717
Total						
	logs	24,271	16,909	16,507	14,969	13,185
	sawnwood	8,122	8,180	8,481	7,888	7,321
	veneer	1,157	1,158	1,058	1,012	984
	plywood	12,168	12,906	11,225	12,404	12,229

[1] Volumes differ from FAO statistics as ITTO coverage is approximately 90% of tropical exporters by volume. ITTO data were used to compare to their forecasts for 1996. Note: figures revised from those quoted in previous years due to addition of new ITTO members and revision of figures by members. Data are comparable over time.

Source: *Annual Review and Assessment of the World Tropical Timber Situation, 1996*, ITTO, 1997.

Table 17
Tropical forest products production[1], 1992-1996

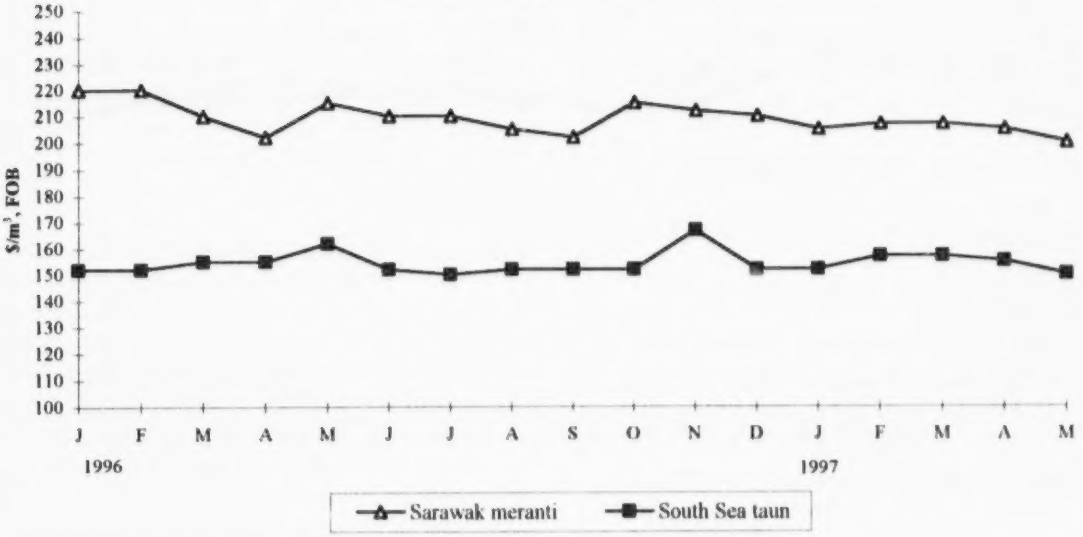
(thousand m^3)

		1992	1993	1994	1995	1996
Africa						
	logs	8,041	9,097	10,255	9,775	9,200
	sawnwood	2,112	2,076	2,290	2,311	2,245
	veneer	316	340	394	421	463
	plywood	144	158	165	221	230
Asia Pacific						
	logs	103,564	96,343	93,424	90,051	85,745
	sawnwood	27,421	26,862	26,656	25,417	24,087
	veneer	1,522	2,333	2,246	2,174	2,393
	plywood	13,049	13,563	12,225	13,527	13,113
Latin American/Caribbean						
	logs	27,704	28,949	31,818	32,154	31,839
	sawnwood	11,816	11,947	12,870	13,329	14,037
	veneer	320	338	405	439	358
	plywood	1,361	1,408	1,797	1,880	1,718
Total						
	logs	139,309	134,389	135,497	131,980	126,784
	sawnwood	41,349	40,885	41,816	41,057	40,369
	veneer	2,158	3,011	3,045	3,034	3,214
	plywood	14,554	15,129	14,187	15,628	15,061

[1] Volumes differ from FAO statistics as ITTO coverage is approximately 90% of tropical exporters by volume. ITTO data were used to compare to their forecasts for 1996. Note: figures revised from those quoted in previous years due to addition of new ITTO members and revision of figures by members. Data are comparable over time.

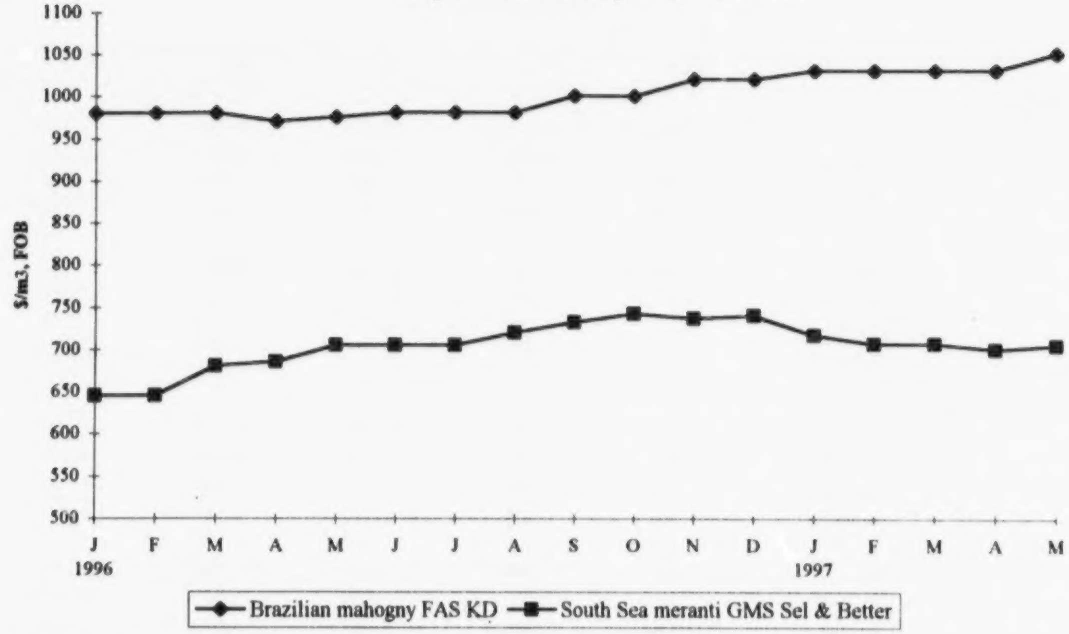
Source: *Annual Review and Assessment of the World Tropical Timber Situation, 1996,* ITTO, 1997.

Graph 29
Tropical log prices, 1996-1997



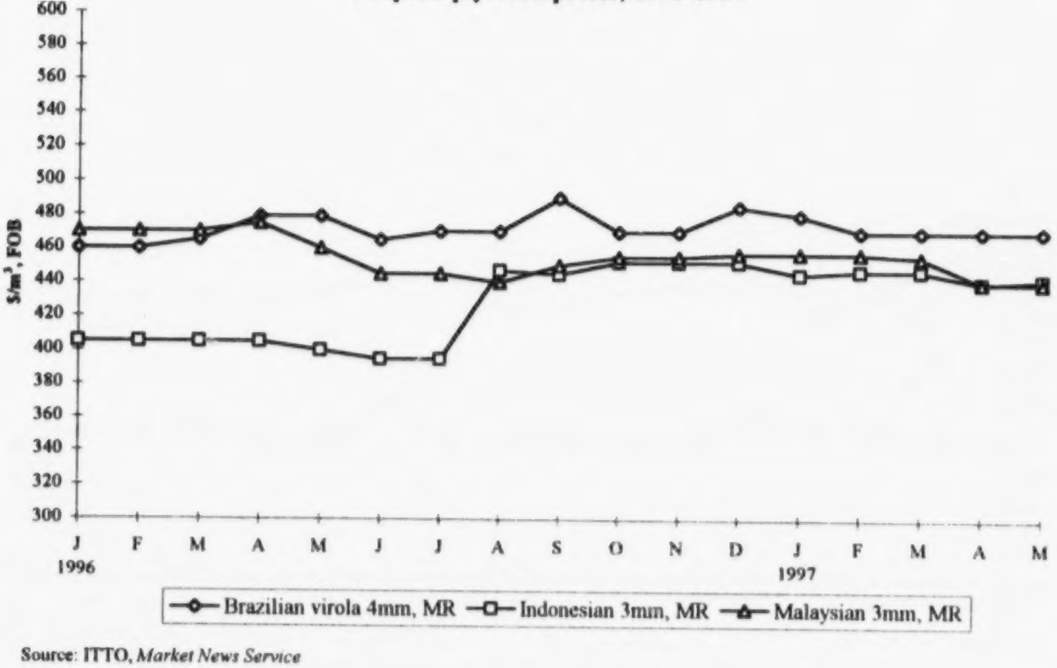
Source: ITTO, *Market News Service*

Graph 30
Tropical sawnwood prices, 1996-1997



Source: ITTO, *Market News Service*

Graph 31
Tropical plywood prices, 1996-1997



Source: ITTO, *Market News Service*

Apparent domestic consumption of tropical forest products, 1995-1996
(1000 m^3)

	1995	1996	% change 1996/1995
Africa			
logs	5907	5469	-7.4
sawnwood	992	1008	1.6
veneer	174	178	2.3
plywood	161	191	18.6
Asia/Pacific			
logs	81684	78447	-4.0
sawnwood	23043	22005	-4.5
veneer	1582	1903	20.3
plywood	2041	1794	-12.1
Latin America/Caribbean			
logs	32134	31838	-0.9
sawnwood	12314	13007	5.6
veneer	374	275	-26.5
plywood	1187	1043	-12.1
Total			
logs	119725	115754	-3.3
sawnwood	36349	36020	-0.9
veneer	2130	2356	10.6
plywood	3389	3028	-10.7

Source: ITTO *Annual Review and Assessment of the World Tropical Timber Situation, 1996*, 1997.

Many tropical countries are facing a dilemma of economic and social development while at the same time they are trying to sustainably manage their forest resources. For example, the *Review* mentioned last year that Sabah, Malaysia's log export ban brought their log exports down from about $200 million in 1991 to low levels in 1994 and 1995. However, in November, 1996, Sabah authorized exports of 2 million m^3 of logs per year out of the current log production of 6.8 million m^3. Sabah has developed downstream processing capacity for approximately 10 million m^3 of roundwood, like sawmills, 80% of which are foreign-owned.

In *Brazil*, the domestic market demand is strong in 1997 as inflation has been reduced to 7% in 1997 and the economy is growing at a 5% annual rate; thus no increase in exports is foreseen for the next few years. For both the domestic and export markets there has been a successful diversification of products and species which has partly reduced the demand on mahogany, as evidenced by unfulfilled sawnwood quotas. Brazil also exports small quantities of plantation-grown pine, mainly southern yellow pine; exports in 1996 to the United States amounted to about 240,000 m^3, most of which is used for finger jointed sawnwood and mouldings and the remaining third is for fencing. The wood-based panel industry is based increasingly on plantation-grown pine.

In 1995, 82% of the United States import value of tropical logs and sawnwood was categorized as "true" mahogany. Actually this was 139,000 m^3 of sawnwood worth $86.6 million, 32% of which was from Bolivia. The other 18% was made up of a variety of species, much of which belongs to the meranti group and related species from Southeast Asia.

Indonesian plywood exports, mostly to Japan, reached $4.7 billion in 1996, an increase of nearly 20% over 1995. Although January, 1997 plywood exports to Japan were about 330,000 m^3, up 65% on the same month in 1995, and the Indonesian industry expected higher exports in 1997, the subsequent slow down in Japanese imports in the second quarter makes the prediction uncertain. At mid-1997 there was mounting pressure for price reductions from Japanese importers faced with weakened demand.

Malaysian furniture exports, 85% of which are wood, topped $930 million in 1996, up 16% from 1995. Plantation-grown rubberwood accounted for more than $630 million or about 80% of the of the total wooden furniture exports; because of the high costs of extraction in comparison with the low world price of rubber, according to the Malaysian Timber Council, latex is no longer collected and the trees have their highest value for wooden furniture stock. In 1997 the Malaysian government lifted the 6-year old export quota on rubberwood sawnwood following domestic price appreciation to the same level as exports. In the first half of 1997, rubberwood exports were unofficially estimated at 50,000 m^3, a considerable increase over the 1996 quota level of 35,000 m^3.

D. Wood-based panels

(i) Overview

Wood-based panels consumption in *Europe* dropped by 1.1% in 1996 after three consecutive years of growth, to 42.05 million m^3 (table 18). The timid recovery of end-use sectors announced for 1997, has not been confirmed in all countries (graph 32). Particle board is the main panel in Europe with 71% of total consumption (graph 33), followed by plywood 15% and fibreboard 14%, of which 75% is medium density fibreboard (MDF).

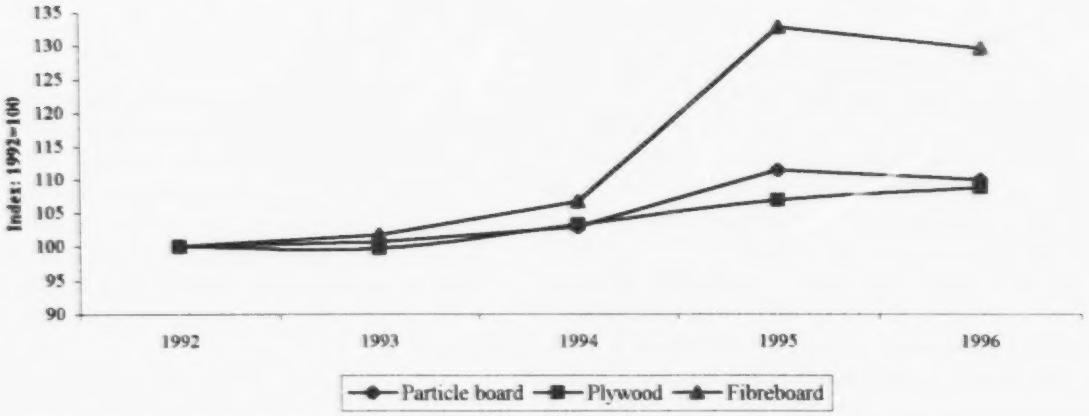
Table 18

Apparent consumption of wood-based panels (excluding veneer sheets) in Europe, the Russian Federation and North America, 1992 to 1996

	Volume					Percent of total	
	1992	1993	1994	1995	1996 (prelim.)	1992	1996 (prelim.)
			(million m3)				(%)
EUROPE							
Particle board	27.19	27.35	27.95	30.29	29.86	72.4	71.0
Plywood	5.99	5.97	6.18	6.40	6.51	16.0	15.5
Fibreboard	4.39	4.46	4.68	5.82	5.68	11.6	13.5
Total	37.57	37.78	38.82	42.51	42.05	100.0	100.0
Change on previous year							
- Volume		0.20	1.04	3.69	-0.46		
- Percent		0.5	2.7	9.5	-1.1		
RUSSIAN FEDERATION							
Particle board	4.54	3.91	2.62	2.05	1.30	63.9	62.8
Plywood	1.05	0.58	0.33	0.27	0.31	14.7	15.0
Fibreboard	1.52	1.08	0.68	0.62	0.46	21.4	22.2
Total	7.10	5.58	3.63	2.94	2.07	100.0	100.0
Change on previous year							
- Volume		-1.53	-1.95	-0.69	-0.88		
- Percent		-21.5	-34.9	-18.9	-29.8		
NORTH AMERICA							
Particle board	16.83	18.11	19.04	19.44	21.54	39.5	45.6
Plywood	18.81	18.86	19.19	18.88	19.00	44.1	40.2
Fibreboard	6.99	7.30	7.51	6.89	6.74	16.4	14.2
Total	42.63	44.26	45.74	45.21	47.28	100.0	100.0
Change on previous year							
- Volume		1.63	1.48	-0.53	2.07		
- Percent		3.8	3.3	-1.2	4.6		

Graph 32

Europe: indices of consumption of wood based panels



In *North America*, on the contrary, the continued strong demand especially from the construction sector, has increased consumption by 4.6% in 1996 to 47.28 million m^3 (graph 34). Oriented strand board (OSB) and medium density fibreboard (MDF) have continued their expansion. An oversupply situation developed for OSB in the structural panel markets as capacity developed faster than demand, resulting in historical low prices.

Wood-based panels consumption in the *Russian Federation*, has further dropped in 1996 by 29.8%, mostly particle board, to just over 2 million m^3 (graph 35). The sharp decline in consumption since 1992 is equivalent to 70.8%.

(ii) Particle board

Particle board apparent consumption in *Europe* dropped by 1.4% in 1996 to 29.9 million m^3 (table 19 and graph 36). However, real consumption was somewhat higher due to destocking, following the important building up of stocks which occurred in 1995. In general markets were depressed with prices under pressure.

Production in *Europe* in 1996 was 0.8% higher than in 1995 and reached 31.16 million m^3 (table 20) (graph 37). Major fallbacks occurred in Germany (-3.1%) and Italy (-10.0%). Several less efficient plants announced closures in 1996, three in Germany, one in Belgium and one in Portugal. Belgium, France, Spain, Poland and the Czech Republic showed important production increases. Imports dropped by 4.2% in 1996, while exports increased by 4.7%, also to countries outside the region: the Near and Far East as a result of improved competitivity of European currencies compared to the strength of the United States dollar, and strong demand in this region. Total Japanese imports of particle board in 1996 increased by 46.4% compared to 1995, to over 500,000 m^3.

In the *United States* particle board production in 1996, excluding OSB, fell by 1.5% to 7.3 million m^3, and increased in Canada by 7.1% to 2.07 million m^3 as a result of new capacity becoming operational. The part of Canadian production exported to the United States in 1996 amounted to 37%, or 0.8 million m^3, and 49% was consumed in domestic markets, increasing Canadian apparent consumption by 41.1%. The slowdown in demand in the United States in 1995 continued in 1996. Some 82% of United States consumption is used by the furniture industry, where it is meeting competition from MDF. Against a history of high particle board prices up to 1995, compared to falling MDF prices, the competition is intense (graph 38). The result has been a drop in particle board prices in early 1997, that are likely to slip further.

Particle board balance in Canada and the United States
in 1995 and 1996
(1000 m^3)

	1995	1996
Canada		
Production	1935	2072
Imports	169	221
Exports	1236	1068
Apparent consumption	868	1225
United States		
Production	7435	7320
Imports	1270	923
Exports	496	158
Apparent consumption	8209	8085

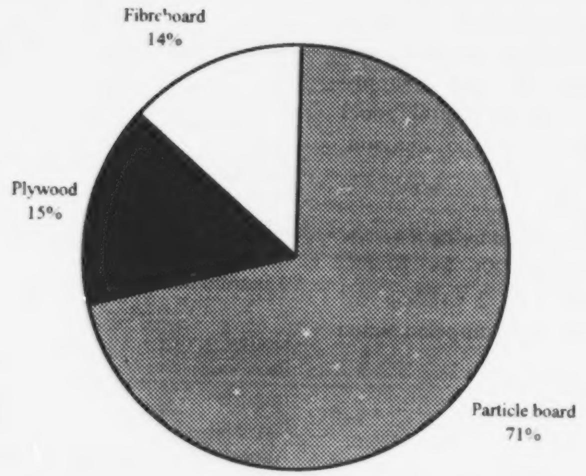
Straw furnish particle board plants. A new development in the particle board industry has been the construction or announcement of several plants (two in Canada and two in the United States) using excess or surplus straw furnish, such as soybean stalks and wheat straw. Tests in Germany and Sweden have demonstrated that these non structural boards have equal or better physical properties than those using wood, for comparable density and resin content. The establishment of these plants are four or five times cheaper than traditional mills. According to experts the market viability will depend on operating costs which could be higher than those for wood-based particle board, notably more expensive isocyanate resins in place of current urea formaldehyde resin. The strawboard which is more homogeneous than particle board would be used in higher value furniture and cabinet production, thus competing with wood-based particle board and MDF.

(iii) Oriented strand board (OSB)

Production of OSB (excluding particle board) continued to increase in North America in 1997 at a rapid pace, as announced new capacity came on stream. In the United States production reached almost 7 million m^3, +17.9% from 1996, and 4.7 million m^3 in Canada +38.9%. A steep fall in prices was the result of the very rapid growth of the industry creating an overcapacity situation. According to Random Lengths, prices (for North Central OSB, per thousand square feet 7/16 inch basis, (graph 39) which were just under $200 in January 1996, fell to $130 in January 1997 and attained their lowest level in April at $120. Moderate price increases were recorded since then and at the beginning of June they reached $137.

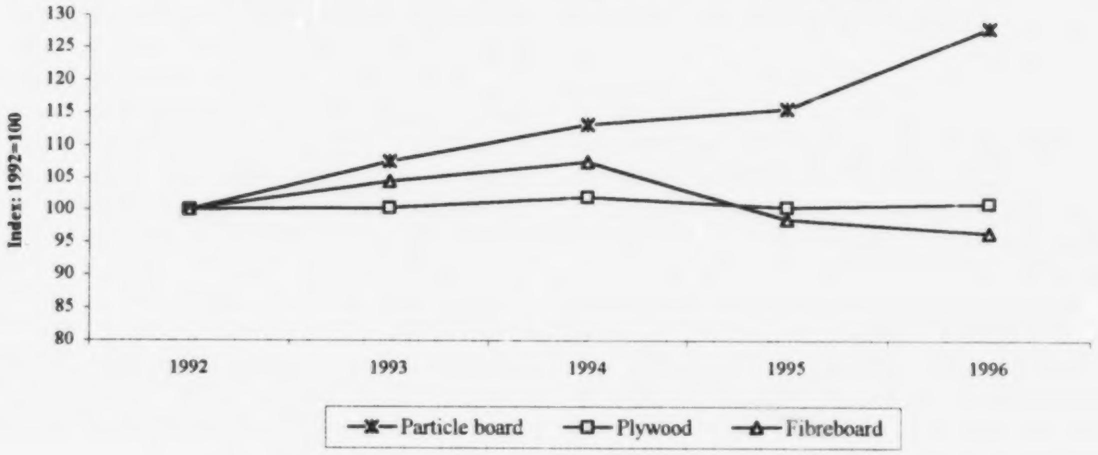
Graph 33

Europe, consumption, 1996



Graph 34

North America: indices of consumption of wood based panels



Graph 35

Russian Federation: indices of consumption of wood based panels

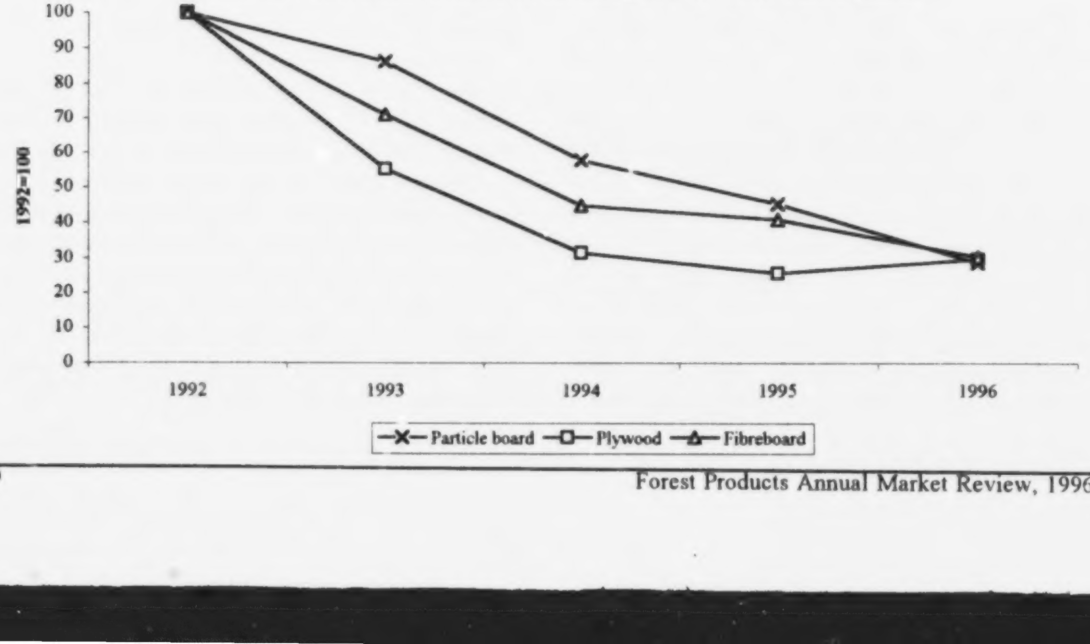


Table 19

Particle board (wood and non-wood) balance in Europe, the Russian Federation and North America, 1992 to 1996 (million M3)

	1992	1993	1994	1995	1996 (prelim.)	Timber Committee estimates a/	
						for 1996	for 1997
EUROPE							
Production	26.82	27.35	28.87	30.93	31.16	30.90	31.51
Imports	6.66	6.21	6.69	7.20	6.90	6.82	6.83
Exports	6.29	6.21	7.60	7.84	8.20	7.80	8.20
Net trade b/	-0.37	-	0.91	0.64	1.30	0.98	1.38
Apparent consumption	27.19	27.35	27.96	30.29	29.86	29.92	30.14
RUSSIAN FEDERATION							
Production	4.55	3.94	2.63	2.21	1.46	1.64	2.10
Exports	0.02	0.04	0.02	0.17	0.18	0.15	0.16
Apparent consumption	4.53	3.90	2.61	2.04	1.28	1.49	1.94
NORTH AMERICA							
Production	17.26	18.52	19.16	19.74	22.32	21.46	22.52
Imports	2.20	3.05	3.79	4.50	4.57	5.03	5.26
Exports	2.64	3.47	3.90	4.80	5.35	5.70	6.05
Net trade b/	0.44	0.42	0.11	0.30	0.78	0.67	0.80
Apparent consumption	16.82	18.10	19.05	19.44	21.54	20.79	21.73

a/ At September 1996 session. The Committee's estimates for 1996 and 1997 have been adjusted to make them comparable with the historical (actual) data for 1992-1996.

b/ + = net exports; - = net imports.

Graph 36
Consumption of particle board, 1970 to 1996

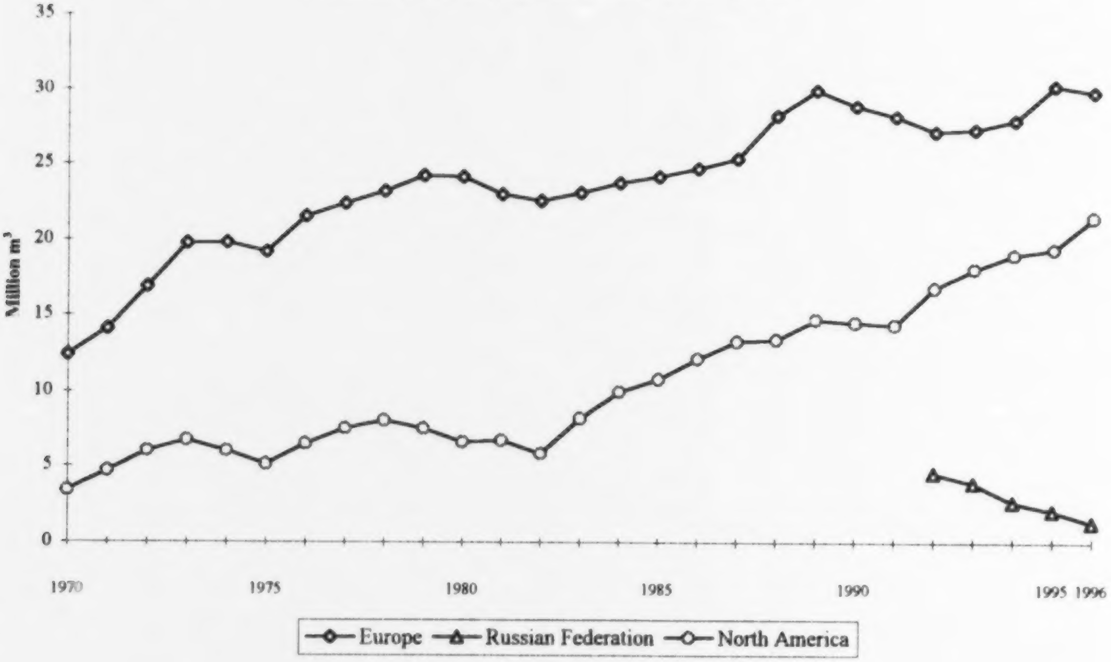
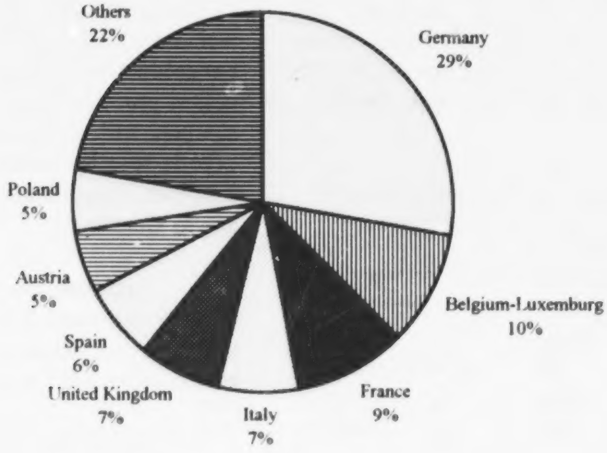


Table 20

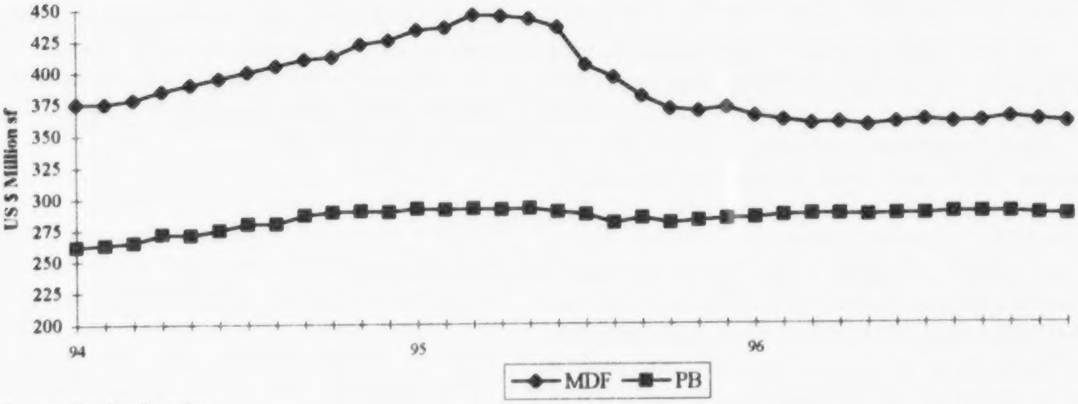
Production and trade of particle board (including non-wood), 1993 to 1996

	1993	1994	1995	1996 (prelim.)	Change 1995 to 1996	
					Volume	Percent
			(1000 m3)			(%)
PRODUCTION						
EUROPE : of which :	27353	28867	30926	31163	237	0.8
Germany	7961	8639	8902	8629	-273	-3.1
Belgium-Luxembourg	2350	2400	2876	3087	211	7.3
France	2461	2567	2733	2872	139	5.1
Italy	2250	2202	2450	2205	-245	-10.0
United Kingdom	1756	1803	2118	2153	35	1.7
Spain	1660	1730	1863	1975	112	6.0
Austria	1594	1666	1666	1666	...	...
Poland	1129	1336	1466	1641	175	11.9
Turkey	883	898	1243	1193	-50	-4.0
Portugal	575	757	757	757	...	...
Czech Republic	501	536	587	748	161	27.4
Sweden	597	609	632	632	...	...
Switzerland	742	656	564	530	-34	-6.0
Finland	439	477	475	475	...	...
Other countries	2455	2591	2594	2601	7	0.3
Russian Federation	3941	2626	2206	1460	-746	-33.8
Canada	4173	4493	5309	6757	1448	27.3
United States	14351	14664	14429	15563	1134	7.9
North America	18524	19157	19738	22320	2582	13.1
EXPORTS						
EUROPE : of which :	6212	7604	7836	8205	369	4.7
Belgium-Luxembourg	1404	1872	1942	1930	-11	-0.6
Germany	1026	1320	1245	1242	-3	-0.2
France	585	827	1000	1206	206	20.6
Austria	891	909	1025	1025	...	...
Switzerland	480	427	376	400	24	6.4
Portugal	328	455	363	341	-22	-6.1
Czech Republic	85	220	230	312	82	35.7
United Kingdom	94	190	254	255	1	0.4
Finland	132	103	195	200	5	2.6
Other countries	1187	1281	1207	1293	87	7.2
Russian Federation	35	18	169	180	11	6.5
Canada	2968	3447	4302	5195	893	20.8
United States	501	457	496	158	-338	-68.1
North America	3469	3904	4798	5353	555	11.6
IMPORTS						
EUROPE : of which :	6206	6690	7201	6897	-304	-4.2
Germany	1732	1713	1755	1444	-311	-17.7
United Kingdom	1165	1167	1190	1185	-5	-0.4
France	607	650	690	680	-10	-1.5
Netherlands	604	755	721	643	-78	-10.8
Spain	322	329	339	446	107	31.6
Sweden	158	186	293	345	52	17.7
Italy	355	346	340	340	...	...
Denmark	270	316	306	290	-16	-5.2
Poland	15	85	310	250	-60	-19.4
Other countries	978	1144	1257	1274	17	1.3

Graph 37
Europe: production of particle board, 1996
(% of European production)

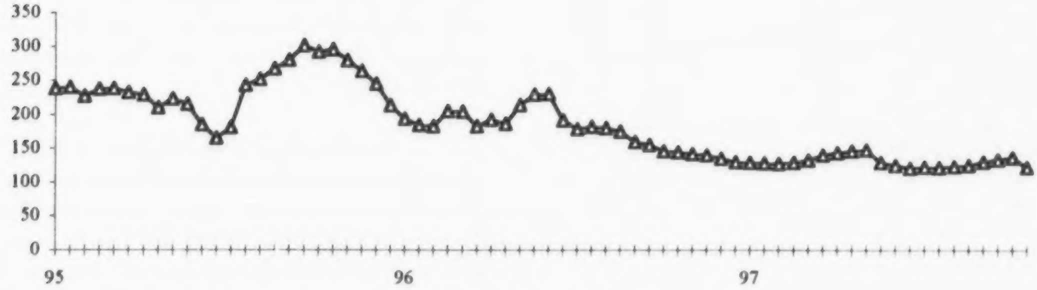


Graph 38
North American, Particle board (PB) and MDF prices, 1994-1996



Source: *Random Lengths*

Graph 39
OSB* prices, 1995 to 1997



* Prices FOB mill for 7/16-inch thick, 1000 square feet, from North Central United States.

Source: Random Lengths

Another consequence of the overcapacity was the closure of some older, less efficient OSB mills in the United States. Most of the announced capacity has been installed, but there are still 6 planned mills yet to start production. Most of the Canadian OSB production, 84%, is exported to the United States. However, exports to Japan are growing rapidly, by 50% to 240,500 m^3 over 1995, and they may double in 1997.

OSB balance in Canada and the United States
in 1995 and 1996
(1000 m^3)

	1995	1996
Canada		
Production	3374	4685
Imports	60	80
Exports	3066	4127
Apparent consumption	368	638
United States		
Production	6994	8243
Imports	3000	3923
Exports	100	139
Apparent consumption	9894	12027

European OSB production is estimated to have reached 400,000 m^3 in 1996, a 30% increase over 1995, and a further increase is expected for 1997 as the new mills reach operation capacity. Luxembourg's Kronospan OSB mill with a capacity of 150,000 m^3/year, has started production. Most of the production is to be sold to Benelux countries, Germany, France and the United Kingdom, there are also export prospects to Japanese markets. In Ireland the Louisiana Pacific/Coillte mill (350,000 m^3/year capacity) also started production at a very reduced rate and is concentrating its efforts at expanding market share in the European market.

OSB World Capacity
(Million m^3)

	Installed (number of mills)		Announced (number of mills)	
Canada	8.5	(21)	1.6	(4)
United States	12.4	(42)	0.7	(2)
Europe	0.8	(4)	0.5	(3)
Other	0.6	(9)	-	
Total	22.3		2.8	

Source: Structural Board Association

(iv) Plywood

Apparent consumption of plywood in *Europe* rose slightly in 1996 by 1.8% to 6.5 million m^3 (table 21 and graph 40). Production rose by 1.4% with an increase of almost 12% in the largest producer, Finland, but production dropped by almost 4%, from the second largest producer, France. French producers must now compete with Asian buyers for African logs. Finnish exports rose by nearly 19%, 80% of which go to EU countries. Imports also increased by almost 4%, mostly due to Germany.

Apparent consumption in the *Russian Federation* increased by almost 15% in 1996 to 309,000 m^3. Exports dropped by 7.6% to 619,000 m^3, after having increased for three consecutive years.

In *North America* apparent consumption increased marginally from 1995 levels as a result of reduced exports from the United States. Production in both the United States and Canada was 1% below that of 1995 (table 22). It is worth noting that prices for softwood plywood, as opposed to the other structural panel, OSB, only fell marginally in 1996, but the market remains under pressure (graph 41). The technical properties of plywood and its use for more specific applications have reduced market share loss to lowered-priced OSB.

However, one third of the plywood plants in North America have closed during the last few years because of loss of market share and reductions in large old-growth peeler logs from western national forests in the United States. There are presently 15 plywood plants in Canada and 96 (57 of which, are southern yellow pine plants) in the United States. However, new technical developments allow peeling of more available, smaller diameter southern yellow pine logs, thus the resource base is shifting. The number of southern plywood plants has remained practically stable since the late 1980's, the average plant capacity has increased since then from 195,000 m^3/year to 209,000 m^3/year, and they have been operating at full capacity since 1993. Total plywood production in 1997 is expected to remain at current levels but fall marginally in the coming years.

Hardwood plywood. Indonesian and Malaysian plywood prices were depressed through mid 1996 when the strong demand in Japan from the housing and construction industry shifted this trend. Another factor was the decreased availability of logs in South East Asia. In the first half of 1997 Indonesian and Malaysian plywood prices have somewhat recovered.

Table 21

Plywood balance in Europe, the Russian Federation and North America, 1992 to 1996 (million m3)

	1992	1993	1994	1995	1996 (prelim.)	Timber Committee estimates a/ for 1996	Timber Committee estimates a/ for 1997
EUROPE							
Production	2.98	3.30	3.67	3.63	3.68	3.60	3.67
Imports	4.59	4.33	4.42	4.56	4.74	4.33	4.39
Exports	1.57	1.66	1.91	1.79	1.90	1.85	1.89
Net trade b/	-3.02	-2.67	-2.51	-2.77	-2.84	-2.48	-2.51
Apparent consumption	6.00	5.97	6.18	6.40	6.52	6.08	6.17
RUSSIAN FEDERATION							
Production	1.27	1.04	0.89	0.94	0.93	0.99	1.03
Imports	-	0.01	0.01	-	-	-	-
Exports	0.23	0.46	0.57	0.67	0.62	0.70	0.72
Net trade b/	0.23	0.45	0.56	0.67	0.62	0.70	0.72
Apparent consumption	1.04	0.59	0.33	0.27	0.31	0.29	0.31
NORTH AMERICA							
Production	18.95	18.92	19.21	18.97	18.79	18.65	17.85
Imports	1.89	1.92	1.84	2.12	2.19	2.06	2.14
Exports	2.03	1.98	1.86	2.21	1.98	2.24	2.24
Net trade b/	0.14	0.06	0.02	0.09	-0.21	0.18	0.10
Apparent consumption	18.81	18.86	19.19	18.88	19.00	18.47	17.75

a/ At September 1996 session. The Committee's estimates for 1996 and 1997 have been adjusted to make them comparable with the historical (actual) data for 1992-1996.

b/ + = net exports; - = net imports.

Graph 40

Consumption of plywood, 1970 to 1996

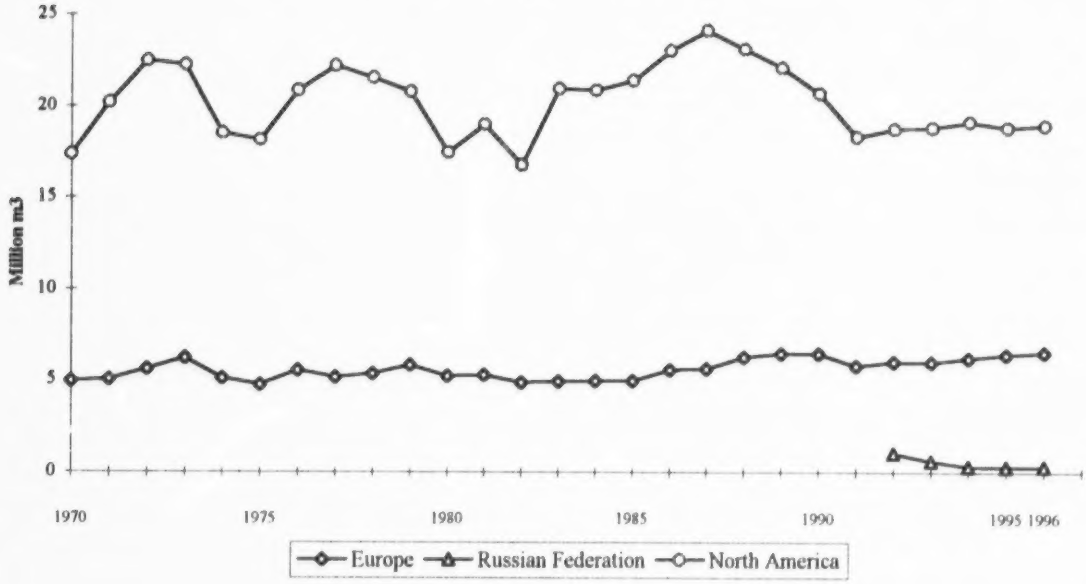


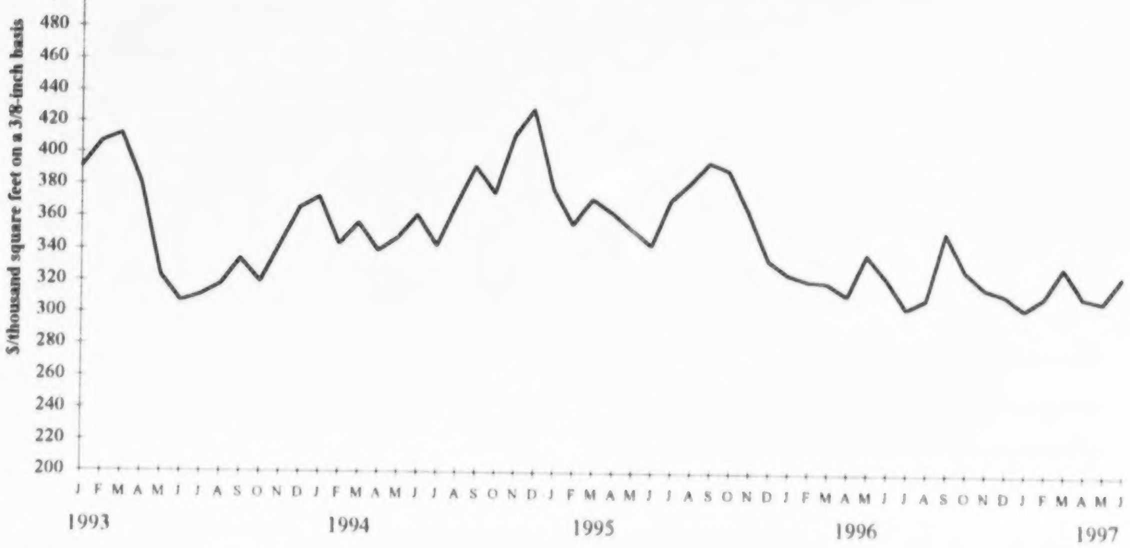
Table 22

Production and trade of plywood, 1993 to 1996

	1993	1994	1995	1996 (prelim.)	Change 1995 to 1996	
					Volume	Percent
			(1000 m3)			(%)
PRODUCTION						
EUROPE : of which :	3299	3672	3630	3681	51	1.4
Finland	621	700	778	869	91	11.7
France	460	594	559	537	-22	-3.9
Germany	416	397	498	507	9	1.8
Italy	415	427	418	402	-16	-3.8
Spain	200	210	210	210	...	...
Austria	150	150	150	150	...	...
Israel	109	109	109	109	...	...
Poland	133	124	115	109	-6	-5.2
Sweden	73	85	108	108	...	...
Czech Republic	75	76	77	85	8	10.8
Other countries	647	800	608	595	-13	-2.2
Russian Federation	1042	890	939	928	-11	-1.2
Canada	1824	1834	1831	1814	-17	-0.9
United States	17093	17380	17140	16975	-165	-1.0
North America	18917	19214	18971	18789	-182	-1.0
EXPORTS						
EUROPE : of which :	1662	1915	1793	1904	111	6.2
Finland	542	627	668	794	126	18.9
France	194	193	183	214	31	16.8
Germany	110	131	149	133	-16	-10.7
Austria	129	158	130	130	...	...
Belgium-Luxembourg	87	134	88	88	...	...
Other countries	600	672	575	545	-30	-5.2
Russian Federation	464	568	670	619	-51	-7.6
Canada	416	511	818	872	54	6.6
United States	1562	1346	1395	1106	-289	-20.7
North America	1978	1857	2213	1978	-235	-10.6
IMPORTS						
EUROPE : of which :	4332	4424	4560	4738	178	3.9
Germany	865	1003	1177	1549	372	31.6
United Kingdom	1157	1202	1127	1132	5	0.4
Netherlands	612	560	552	524	-28	-5.1
France	263	234	260	256	-4	-1.5
Belgium-Luxembourg	436	267	146	215	69	47.6
Denmark	152	171	188	167	-21	-11.2
Other countries	847	987	1110	895	-215	-19.4
Canada	288	288	353	422	69	19.5
United States	1630	1547	1769	1769	...	...
North America	1918	1835	2122	2191	69	3.3

Graph 41

North American structural panel composite price, 1993 to 1997



Source: *Random Lenghts Export*

In 1996 Indonesia exported 8.5 million m^3 of plywood, 1.2% lower than in 1995, and 1.3 million m^3 below the record year of 1993. Some 3.6 million m^3 were exported to Japan.

Brazilian plywood exports suffered from the low price levels in 1995 and the first half of 1996, and its production dropped by 50%. In order to be profitable plywood export prices from Brazil need to be 5% higher than South East Asian plywood. Prices have firmed in 1997 but Brazilian plywood is practically unavailable mostly due to a shift towards more profitable veneer production for export and the high costs of money lending in the short term financial market resulting from the monetary policy to keep inflation at low levels. There is also a strong domestic plywood demand.

(v) Fibreboard

Hardboard production in *Europe*, including MDF, increased by 4.4% in 1996, and insulating board production contracted by 19.3% in 1996 (tables 23 and 24). FEROPA, the European Federation of fibreboard manufacturers, sees with optimism the prospects for hardboard (excluding MDF) and insulating board in the near future, as economic activity in general and the construction sector gain strength.

Apparent consumption of fibreboard as a whole in *North America* dropped by 2.2% in 1996 (graph 42). Apparent consumption of hardboard in the United States increased by 8% to 1.2 million m^3. Apparent consumption of insulating board in the United States dropped by 9.2% to 2.8 million m^3, in Canada it showed little change from 1995.

Medium density fibreboard. Production of MDF in *Europe* amounted to 4.5 million m^3 in 1996, an increase of 18.4% from 1995. Installed capacity also increased to just over 6 million m^3, as most of the announced mills came on stream in 1995 and 1996. According to the FESYP annual report capacity expansion in Europe has nearly come to an halt. The main producer countries in order of importance are Germany, Spain and Portugal, Italy, the United Kingdom and Ireland. Germany is also the main consumer with more than 1 million m^3. Some 250,000 m^3 were exported outside the region, mostly to Japan. Demand for MDF is strong in Europe and prices are picking up from the low levels of 1995. Several price increases have been registered in 1997, and others are expected before the end of the year.

Table 23

Fibreboard balance in Europe, the Russian Federation and North America, 1992 to 1996
(million m3)

	1992	1993	1994	1995	1996 (prelim.)	Timber Committee estimates a/ for 1996	Timber Committee estimates a/ for 1997
EUROPE							
Production	4.06	4.55	4.94	5.98	6.06	6.34	6.57
Imports	2.27	2.09	2.48	2.70	2.89	2.60	2.63
Exports	1.95	2.17	2.73	2.86	3.28	3.04	3.10
Net trade b/	-0.32	0.08	0.25	0.16	0.39	0.44	0.47
Apparent consumption	4.38	4.47	4.69	5.82	5.67	5.90	6.10
Russian Federation							
Production *	1.57	1.16	0.77	0.75	0.60	0.61	0.70
Exports	0.05	0.08	0.10	0.13	0.14	0.13	0.13
Apparent consumption	1.52	1.08	0.67	0.62	0.46	0.48	0.57
NORTH AMERICA							
Production	7.42	7.63	7.87	7.23	7.31	7.48	7.53
Imports	0.45	0.55	0.70	0.75	0.56	0.78	0.78
Exports	0.88	0.88	1.06	1.09	1.13	1.13	1.13
Net trade b/	0.43	0.33	0.36	0.34	0.57	0.35	0.34
Apparent consumption	6.99	7.30	7.51	6.89	6.74	7.13	7.18

a/ At September 1996 session. The Committee's estimates for 1996 and 1997 have been adjusted to make them comparable with the historical (actual) data for 1992-1996.

b/ + = net exports; - = net imports.

Graph 42

Consumption of fibreboard, 1970 to 1996

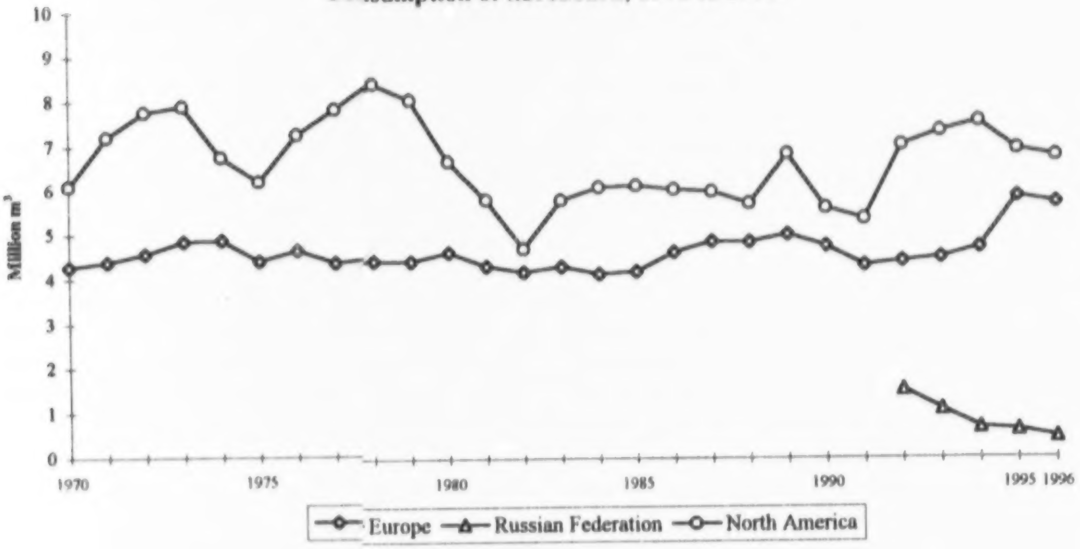


Table 24

Production and trade of fibreboard, 1993 to 1996

	1993	1994	1995	1996 (prelim.)	Change 1995 to 1996	
					Volume	Percent
			(1000 m3)			(%)
PRODUCTION						
EUROPE :						
Hardboard a/	3631	4209	5201	5431	230	4.4
Insulating board	915	729	779	628	-151	-19.3
Total	4546	4937	5979	6059	80	1.3
of which :						
Germany	684	854	854	854	...	...
Italy	255	222	915	800	-115	-12.6
Poland	464	515	650	645	-5	-0.8
Spain	480	550	600	590	-10	-1.7
France	450	483	477	483	6	1.3
United Kingdom	318	400	408	420	12	2.9
Portugal	290	336	336	336	...	...
Turkey	95	120	131	301	170	129.8
Ireland	162	180	246	274	28	11.4
Other countries	1348	1277	1362	1356	-6	-0.5
Russian Federation	1158	767	748	595	-153	-20.5
Canada	750	827	717	894	177	24.7
United States	6878	7044	6508	6415	-93	-1.4
North America	7628	7871	7225	7309	84	1.2
EXPORTS						
EUROPE :	2174	2731	2859	3276	417	14.6
of which :						
Germany	212	325	320	494	174	54.4
Italy	361	427	400	411	11	2.8
Poland	116	196	298	380	82	27.5
Portugal	239	277	250	341	91	36.6
France	248	311	320	338	18	5.6
Spain	304	273	248	290	42	16.8
Other countries	694	922	1023	1021	-1	-0.1
Russian Federation	78	98	134	140	6	4.5
Canada	253	360	365	497	132	36.2
United States	625	700	721	628	-93	-12.9
North America	878	1060	1086	1125	39	3.6
IMPORTS						
EUROPE :	2091	2476	2699	2893	195	7.2
of which :						
United Kingdom	374	376	399	486	87	21.8
Germany	330	408	441	482	41	9.3
Netherlands	207	249	287	300	13	4.5
Italy	206	229	313	260	-53	-16.9
Spain	114	125	132	207	75	56.4
Belgium-Luxembourg	125	201	191	197	6	3.0
Other countries	735	888	936	962	26	2.8
Canada	186	164	154	164	10	6.5
United States	363	531	599	392	-207	-34.6
North America	549	695	753	556	-197	-26.2

a/ Including medium density fibreboard.

In *North America* MDF capacity continued to increase in 1996 and further increases have been announced for the coming years mostly in Canada. Demand has not followed at the same rate, resulting in downward pressure on prices. Apparent consumption in the United States increased by 15.7% to 2.1 million m^3. Canadian production, including hardboard, increased by 60% to 469,000 m^3 and exports by 47.4% to 370,000 m^3, MDF exports to the United States are estimated at some 200,000 m^3.

The decreasing availability of timber suitable for plywood production and log export restrictions in South East Asia has resulted in a higher demand for MDF panels. In Japan there is a growing demand for MDF, largely as a replacement for thin plywood. With plywood becoming more expensive prospects are high for the larger use of MDF in the building industry.

(vi) Engineered Wood Products (EWP)

The use of engineered wood products has increased rapidly in the last six years and is expected to play a greater role in the building industry but especially in the residential construction. EWP can be either sawnwood and its wood-based substitutes or wood-based panels. Wood I-beams, laminated veneer lumber, oriented strand lumber products are rapidly gaining market share of traditional sawnwood consumption. *Widman's World Wood Review*, estimates that the development of EWP is due to both, constraints on the wood supply and the technological innovations that have made it possible to efficiently process small diameter logs.

OSB webbed *I-joists* are growing at 25% annually and replacing 2x10 and 2x12 inch framing sawnwood. APA, the Engineered Wood Association, estimated that in 1996 20% of the homes constructed in the United States used I-beams rather than the traditional solid wood joists. APA forecasts I-joist production in North America to increase from 400 million lineal feet in 1995 to 1 billion by the year 2000. According to APA when industry-wide standards are adopted the expansion could take place at an even faster pace.

The glue-laminated beam, *glulam*, is widely used in structural applications. Planed sawnwood is the main material and beams are manufactured in a variety of shapes and stress categories. Production and imports of laminated sawnwood are rapidly increasing in Japan. It is well adapted for post and beam applications, seismic resistance and as pre-cut components in houses. (Additional coverage of Japan's EWP utilization appears in section F.)

Solid sawn timber, SST and *beams*, SSB, assembled with bolted steel plating are also widely used as larger solid sawnwood dimensions get scarcer and more expensive.

Structural composite sawnwood products are a superior substitute for solid sawnwood while maintaining the machinability. *Laminated veneer lumber*, LVL, is adhesively bonded parallel veneers which are made into a billet and sawn to dimension. *Widman's World Wood Review* estimates that I-beams are the largest user of LVL, 685,000 m^3 in 1996 with a 75% share of I-beam flanges. *Parallel strand lumber*, PSL, uses veneer that is cut into strands and parallel laminated into a billet and then resawn. *Laminated strand lumber*, LSL, is made of aligned strands adhesively bonded into a billet and uses species such as poplar and birch.

As regards panels, *plywood* production is more and more turning to small diameter logs as raw material input, thanks to new technologies. *OSB* is made of oriented bonded strands, hot pressed into structural panels, and uses any wood species. *Particle board* is made from wood residues such as shavings and sawdust, and *MDF* is made from wood fibres hot pressed, normally using urea formaldehyde as an adhesive.

E. Woodpulp, pulpwood and paper and paperboard

This section analyses trends on markets for pulpwood, preceded by a brief discussion of developments for pulp and paper, which clearly play a determinant role in demand for pulpwood. It should be borne in mind that in the standard ECE/FAO terminology, "pulpwood" refers to all wood to be used as raw material for the manufacture of pulp, particle board and fibreboard. "Pulpwood" includes "pulpwood, round and split" (or "round pulpwood"), which may be either coniferous or non-coniferous and "residues, chips and particles", a by-product of the sawmilling and plywood industries.

(i) Paper and paperboard

Apparent consumption of paper and paperboard fell in 1996 in all three parts of the ECE region, by 1.5% in Europe and North America, and by 35% in the Russian Federation (graph 43). The dramatic drop in Russia is not unexpected, given the difficult economic conditions in that country, although it is much steeper than the fall in GDP (6%). The apparent consumption of paper and paperboard in Russia in 1996 was about half that of 1993.

The fall in apparent consumption of paper and paperboard in North America in 1996 may be considered surprising given the general strength of the economy that year, and the normal close correlation between growth for paper consumption and that for the economy as a whole. Explanations proposed concern reactions to rises in paper prices in 1995 and early 1996. Consumers appear to have build up stocks, in anticipation of further price rises, and taken measures to limit consumption (page limits, smaller pages, less frequent issues, etc.). As a result, during 1996, consumers limited their purchases by drawing down stocks. This forced producers in turn to cutback production: prices fell. As consumers' stocks have now been drawn down, the outlook for 1997 is for resumed growth in apparent consumption.

As a consequence of these developments, *production* of paper and paperboard fell rather sharply in the first half of 1996, but started to recover in the second half (table 25). For the year as a whole, it fell in all three regions, by 1.7% in Europe, 0.6% in North America and 21% in the Russian Federation. In general the falls affected mostly printing and writing paper, including newsprint, where the drops are greatest, especially if developments for France and Germany, (which did not supply data in time for inclusion in the tables) are taken into account. In Germany, according to CEPI, the west European paper industry association, newsprint production fell by nearly 10% and that of other printing and writing paper by 2.3%. In France, the drops were 12% and 1.4% respectively. However, for other paper and paperboard, the drops were 0.6% for Germany and 0.8% for France. For North America too, there were production drops for newsprint and other printing and writing (1.7% and 2.5%, respectively), but production of other paper and paperboard rose slightly.

In the first quarter of 1997, according to CEPI, (quoting data supplied by the associations for Canada, Japan and United States of America), production rose strongly, continuing the trend of the second half of 1996. The percentage change of the first quarter 1997, over the first quarter 1996 (which was actually before the low point of the cycle), was as follows:

West Europe:	+ 5.3%
United States:	+ 8.4%
Canada:	+ 2.6%
Japan:	+ 1.0%

Graph 43

Consumption of paper and paperboard, 1970 to 1996

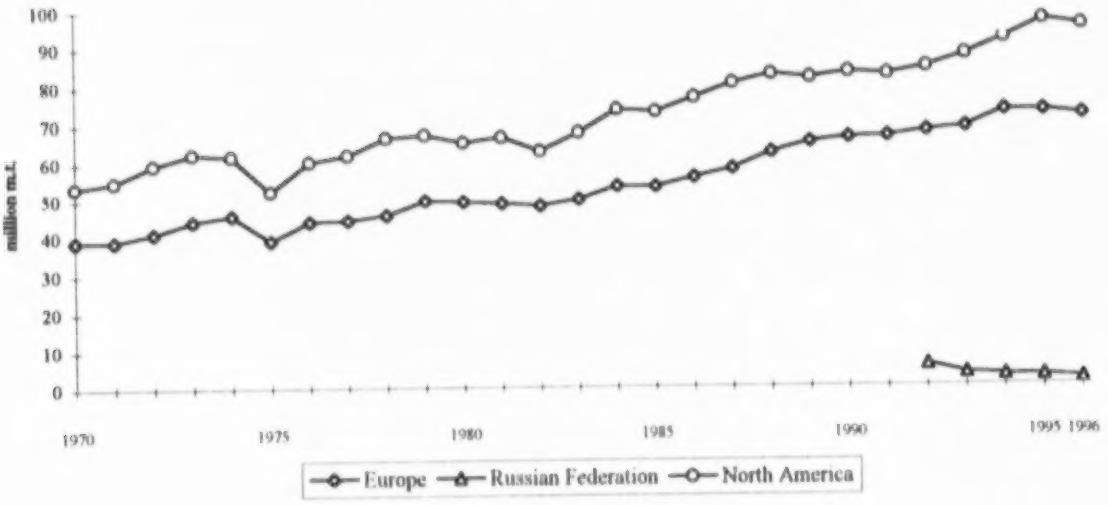


Table 25

Production of paper and paperboard in Europe and North America, 1993 to 1996

	1993	1994	1995	1996 (prelim.)	Change 1995 to 1996 Volume	Change 1995 to 1996 Percent
			(1000 m.t.)			(%)
NEWSPRINT						
EUROPE : of which :	9258	9740	10186	9949	-237	-2.3
Sweden	2325	2415	2346	2283	-63	-2.7
Germany	1302	1499	1726	1726	...	...
Finland	1425	1446	1425	1327	-98	-6.9
United Kingdom	741	769	873	976	102	11.7
Norway	1007	1007	973	913	-60	-6.2
France	802	844	890	890	...	...
Other countries	1656	1760	1952	1834	-119	-6.1
Russian Federation	845	1038	1457	1243	-214	-14.7
Canada	9136	9321	9226	9015	-211	-2.3
United States	6505	6335	6351	6303	-48	-0.8
North America	15641	15656	15577	15318	-259	-1.7
Japan	2917	2972	2972	2972	...	...
OTHER PRINTING AND WRITING PAPER						
EUROPE : of which :	25468	28539	28839	28065	-774	-2.7
Finland	5567	6159	6457	6014	-443	-6.9
Germany	4928	5865	5872	5872	...	...
France	2936	3268	3096	3096	...	...
Sweden	1884	2061	2047	2170	123	6.0
Italy	2381	2595	2594	2066	-528	-20.4
Austria	1574	1728	1764	1764	...	...
Other countries	6198	6863	7009	7083	74	1.1
Russian Federation	665	430	486	457	-29	-6.0
Canada	4194	4445	4882	4689	-193	-4.0
United States	21829	23323	23042	22550	-492	-2.1
North America	26023	27768	27924	27239	-685	-2.5
Japan	9543	9805	9805	9805	...	...
OTHER PAPER AND PAPERBOARD						
EUROPE : of which :	37127	39668	40211	39892	-320	-0.8
Germany	6804	7093	7229	7229	...	...
France	4237	4589	4633	4633	...	...
Sweden	4572	4808	4766	4585	-181	-3.8
Italy	3555	3956	4033	4114	81	2.0
United Kingdom	2990	3241	3454	3460	6	0.2
Finland	2998	3304	3060	3100	40	1.3
Other countries	11971	12677	13036	12771	-265	-2.0
Russian Federation	2949	1944	2130	1512	-618	-29.0
Canada	4198	4583	4605	4710	105	2.3
United States	48833	51290	56133	56320	187	0.3
North America	53031	55873	60738	61030	292	0.5
Japan	15304	15750	15750	15750	...	...

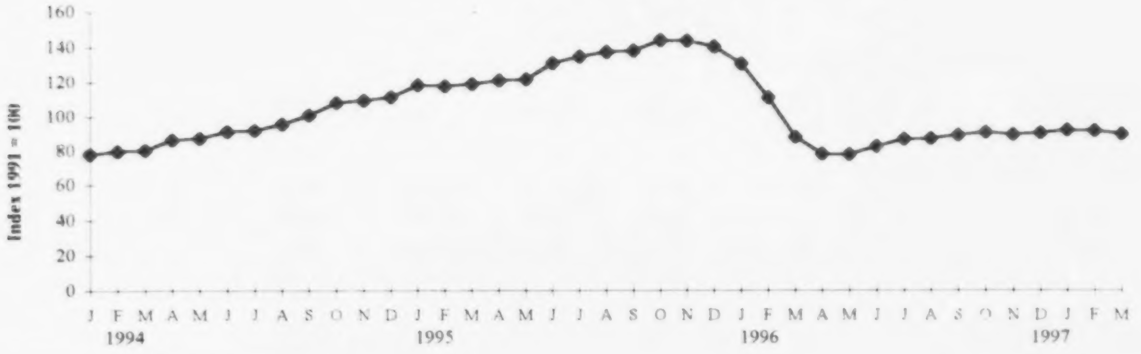
(ii) Woodpulp

The market for wood pulp was strongly influenced by weak demand (caused by the developments outlined above) and strong movements in stocks. As reported in the last *Annual Review*, spring 1996 saw a precipitous fall in pulp prices, from near $1000/ton at end 1995 (for the benchmark grade, Northern Bleached Softwood Kraft, NBSK) to about $500/ton in late spring 1996. This fall was accompanied, or caused by, a rise in producer stocks. In February 1996, world bleached market pulp stocks were over 4 million tons, and those of NORSCAN (North America and Scandinavia) producers stood at nearly 2.6 million tons. Producers had little choice but to cut back production to bring supply more into line with demand and reduce stocks. In mid 1996, world stocks had fallen to 2.5 million tons and NORSCAN stocks to about 1.5 million tons. Prices rose slightly, to around $550/ton, and stayed at that level in the second half of 1996, although stocks started to rise again, causing more downtime in end 1996. Thus, while 1995 had been marked by very high levels of production and prices, 1996 saw efforts by producers to recover markets balance by reducing production (table 26). In early 1997, prices fell slightly, but from early spring, stocks were reduced and prices recovered (graphs 44 and 45).

The official figures for *pulp production* in 1996 show a steep drop, for practically all grades and all producers, which is not surprising given the global nature of the pulp markets. In Europe and North America, production of chemical pulp dropped by about 2.5% in 1996, with steeper declines in Sweden (-4.1%), France (-6.5%), Spain (-5.3%), Norway (-9.9%) and the Czech republic (- 6.7%). Russian chemical pulp production fell by a quarter, after the recovery in 1995. This was presumably due to the fact that certain mills, which had become price competitive again in the strong market conditions of 1995 became uneconomic at the 1996 pulp price levels. Production of mechanical pulp, which is much more vertically integrated than that of chemical pulp, and is strongly influenced by trends in newsprint production, fell by 5.7% in Europe, with an 8.1% drop in Sweden and an 11% fall in Germany, but rose in North America, by 1.6%, with a sharp rise in the United States (13.9%).

Graph 44

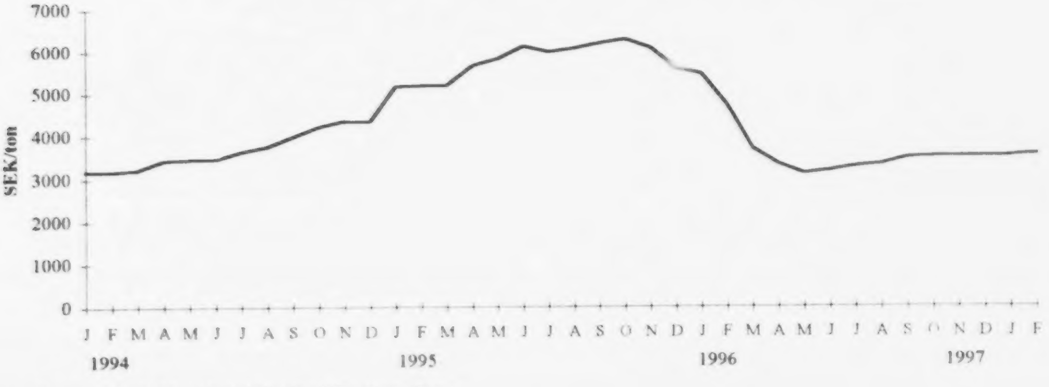
Germany: import price index for chemical pulp



Source: ZMP, official statistics

Graph 45

Sweden: export price for chemical pulp (bleached sulphate)



Source: Allmän Manadsstatistik, Statistika Centralbyran

Table 26

Production of woodpulp in Europe and North America, 1993 to 1996

	1993	1994	1995	1996 (prelim.)	Change 1995 to 1996	
					Volume	Percent
			(1000 m.t.)			(%)
MECHANICAL WOODPULP						
EUROPE : of which :	11828	12291	12895	12158	-737	-5.7
Finland	3401	3631	3797	3489	-308	-8.1
Sweden	2722	2858	2861	2753	-108	-3.8
Norway	1418	1516	1627	1502	-125	-7.7
Germany	1331	1236	1266	1266	...	...
France	823	886	934	934	...	...
United Kingdom	444	502	548	490	-58	-10.6
Other countries	1689	1662	1862	1724	-138	-7.4
Russian Federation	1165	919	1245	1065	-180	-14.5
Canada	10588	10838	11550	10974	-576	-5.0
United States	5586	5884	6167	7023	856	13.9
North America	16174	16722	17717	17997	280	1.6
Japan	1644	1636	1636	1636	...	...
CHEMICAL WOODPULP a/						
EUROPE : of which :	22828	23749	24098	23509	-589	-2.4
Sweden	7231	7310	7326	7025	-301	-4.1
Finland	5937	6331	6291	6187	-104	-1.7
France	1717	1901	1884	1884	...	...
Portugal	1520	1539	1539	1539	...	...
Spain	1268	1374	1481	1481	...	...
Austria	1078	1196	1230	1230	...	...
Norway	749	771	930	839	-92	-9.9
Poland	690	644	767	776	9	1.2
Germany	701	721	718	718	...	...
Czech Republic	631	448	440	411	-29	-6.7
Slovakia	184	323	249	241	-8	-3.2
Other countries	1122	1192	1243	1179	-64	-5.1
Russian Federation	3907	2998	3828	2840	-988	-25.8
Canada	12548	13893	14093	13625	-468	-3.3
United States	52935	59904	60927	59463	-1464	-2.4
North America	65483	73797	75020	73088	-1932	-2.6
Japan	8946	8939	8939	8939	...	...

a/ Including semi-chemical woodpulp and dissolving grades.

The "commodity" nature of the pulp markets and the increasingly violent and rapid price cycle have led to the establishment of futures contracts for market pulp in Helsinki (FOEX) and London (PULPEX), in February and May 1997 respectively. It is too early to judge of the success of these ventures, or how they will affect global pulp markets.

Although, the *recovered paper markets* are much less transparent than the pulp markets, it is clear that use of recovered paper as raw material is expanding faster than that of pulp, but that the essentially supply-driven recovered paper market is as vulnerable, if not more so to cyclical price fluctuations. In the United States, recovered paper prices quintupled between mid 1994 and mid 1995 (graph 46), but had returned to their starting point by the end of 1995. In 1996 and 1997 however, they stayed stable (at little higher levels than in the 1980s), thus exerting a long term restraining influence on pulp prices. In Germany too (apparently the only European country to publish data on recovered paper prices), there was a steep rise culminating at the end of 1995, followed by an even steeper fall, to a low point in February 1997 (graph 47). The data for March 1997 show a small improvement in price, but the future trend will no doubt be strongly influenced by trends on the pulp markets.

(iii) Pulpwood

Low pulp production and the fall in pulp prices in 1996, along with pressure from recovered paper supplies exerted strong downward pressure on markets for pulpwood in 1996. The estimated *"derived requirements"* (based on data for production of pulp, particle board and fibreboard, with the use of standard conversion factors) show drops in pulpwood requirements of 2.0% in Europe and 1.1% in North America (tables 27 and 28). In both cases significant drops in pulpwood requirements by the largest user sector, chemical pulp, were partly offset by small increases for wood based panels.

European pulpwood *removals* fell by 5.4% to 111.5 million m^3. (The data on pulpwood removals are presented together with the data for other removals in table 7). Finland and Sweden, which between them account for 37% of European pulpwood removals, saw their domestic removals fall by 12%, a drop of 5.7 million m^3. Sweden's pulpwood removals fell by 15% (3.7 million m^3) and Finland's by 9% (2 million m^3). German removals of pulpwood are also reported to have fallen sharply, after a sharp rise in 1995, although these data, published by ZMP, have not yet been officially received by the secretariat. Total United States removals of pulpwood fell slightly, despite an increase of 2 million m^3 (3.4%) in United States non-coniferous pulpwood removals.

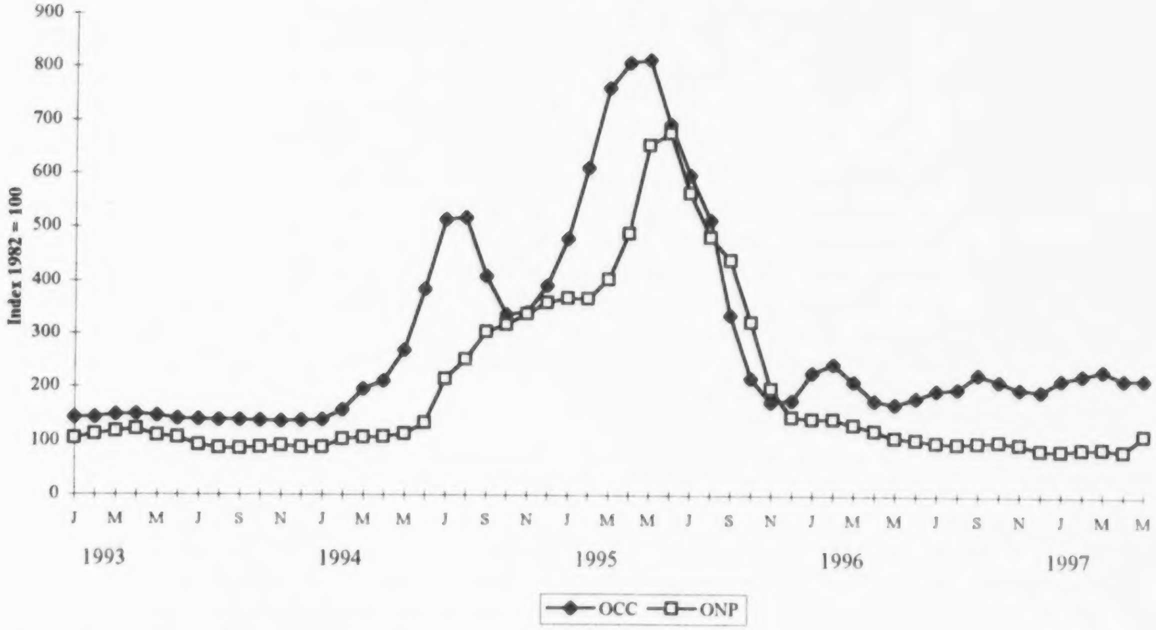
Historical data on supply of wood residues, chips and particles from primary wood processing industries are unfortunately not available, although in September 1996, the Timber Committee forecast that European supply of this assortment would fall by 3.5% in 1996, with a particularly steep fall in Finland. It should be noted that the data in table 29 are taken from the Timber Committee estimates of September 1996 and are thus not comparable with data in other parts of this *Review* (table 29). This assortment has continued to increase in relative importance for Germany for which the share of wood residues in the fibre input of the pulp industry has risen from a third to a half in ten years (graph 48). If wood consumption by the panels industry in Germany had been included, the percentage would have been significantly higher.

It appears however that over the last few years, a raw material source, for panels and for energy, which has been seen in the past as only of potential importance, has now become significant in reality. This raw material source is *"recovered wood"*, i.e. wood which has served its original purpose, for instance as pallets, packaging, furniture or housing ("demolition wood"), but which has been recovered, chipped, cleaned or sorted, and delivered to a particle board mill or energy plant. The stimulus to this development has been the stricter legislation on waste disposal enacted in a number of countries, notably Germany and the Netherlands, which has raised the cost of disposal (e.g. by landfill), and thereby encouraged entrepreneurs to find other solutions. It is estimated (Ollmann, personal communication) that 0.6 to 0.8 million m^3 of the raw material input of the German particle board industry is now "recovered wood". Furthermore, it is estimated (Hillring, personal communication) that several hundred thousand tons of this material has been imported to Sweden for use as energy source in heating plants (in Sweden, wood is a rather competitive energy source because of the significant carbon tax imposed on non-renewable fuels, but not on wood).

The balance of market forces is reflected in developments for *pulpwood prices*, which have been low in all markets for most of 1996 and 1997 (graphs 49 and 50). Although the scattered nature of the transactions and the wide quality differences make it impossible to "track" pulpwood prices in the same way as pulp prices (i.e. with a standard price measured monthly or weekly), the underlying situation is still clear: 1996 saw a fall from the very high levels of 1995, fuelled by the pulp price boom. Late 1996 and early 1997 saw stabilization, often at low levels, with signs of an improvement.

Graph 46

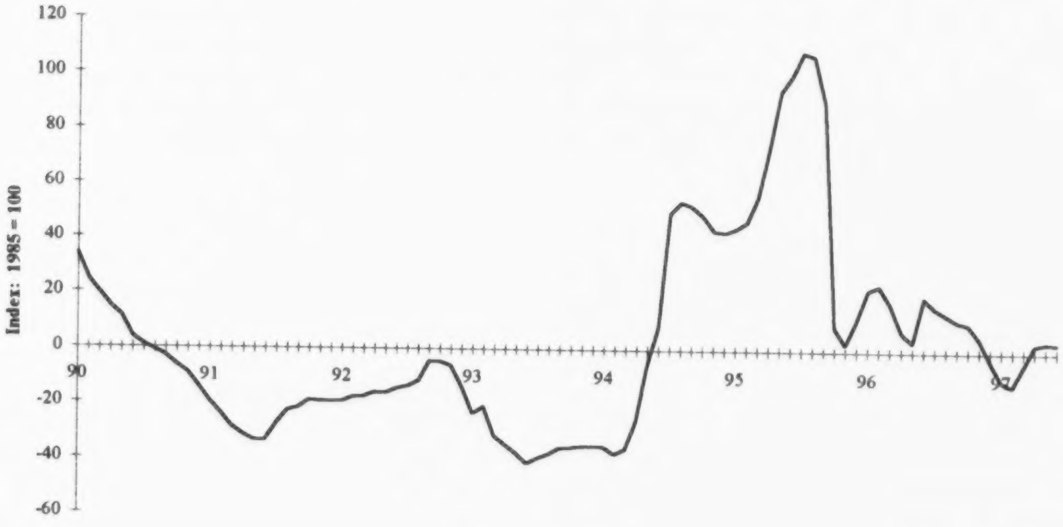
United States waste paper prices, 1993 to 1997



Source: Bureau of Labour Statistics, reported by FPRS

Graph 47

Germany: wholesale price index for mixed waste paper



Source: Statistisches Bundesamt

Table 27

Derived pulpwood requirements in Europe and North America, 1993 to 1996

	1993	1994	1995	1996 (prelim.)
	(million m3 EQ) a/			
EUROPE				
Mechanical woodpulp	29.57	30.73	32.24	30.39
Semi-chemical woodpulp	4.10	3.92	4.33	3.95
Chemical woodpulp b/	103.02	107.73	108.74	106.53
Particle board	38.29	40.41	43.30	43.63
Fibreboard	8.18	8.89	10.76	10.91
Total	183.16	191.67	199.37	195.40
Change on previous year				
- Volume		8.51	7.69	-3.96
- Percent		4.6	4.0	-2.0
NORTH AMERICA				
Mechanical woodpulp	40.44	41.81	44.29	44.99
Semi-chemical woodpulp	12.22	13.42	13.01	12.71
Chemical woodpulp b/	294.76	332.76	339.29	330.48
Particle board	25.93	26.82	27.63	31.25
Fibreboard	13.73	14.17	13.01	13.16
Total	387.08	428.97	437.22	432.59
Change on previous year				
- Volume		41.88	8.26	-4.63
- Percent		10.8	1.9	-1.1

a/ Equivalent volume of wood in the rough, calculated from data on production of pulp and panels, using the following conversion factors :

Mechanical woodpulp : 1 m.t. = 2.5 m3 EQ
Semi-chemical woodpulp : 1 m.t. = 3.0 m3 EQ
Chemical woodpulp
(incl. dissolving) : 1 m.t. = 4.8 m3 EQ
Particle board : 1 m3 = 1.4 m3 EQ
Fibreboard : 1 m3 = 1.8 m3 EQ

b/ Including dissolving pulp.

Table 28

Derived pulpwood requirements in selected countries, 1993 to 1996

	1993	1994	1995	1996 (prelim.)	Change 1995 to 1996	
					Volume	Percent
	(million m3 EQ) a/					(%)
Sweden	42.12	42.86	43.15	41.45	-1.70	-3.9
Finland	36.97	39.47	39.65	38.46	-1.19	-3.0
Germany	19.07	20.18	20.61	20.23	-0.38	-1.9
France	14.35	15.59	15.87	16.07	0.21	1.3
Spain	9.32	10.03	10.96	11.10	0.14	1.3
Austria	8.52	9.28	9.42	9.42	...	...
Portugal	8.62	9.05	9.05	9.05	...	...
Norway	7.77	8.20	9.20	8.46	-0.74	-8.0
Poland	5.75	5.89	7.01	7.20	0.19	2.7
Belgium-Luxembourg	4.40	4.78	5.44	5.74	0.29	5.4
Canada	93.11	100.89	104.60	103.22	-1.39	-1.3
United States	293.97	328.08	332.62	329.37	-3.25	-1.0

a/ Equivalent volume of wood in the rough calculated from data on production of pulp and paper using the conversion factors given in the footnote a/ to previous table.

Table 29

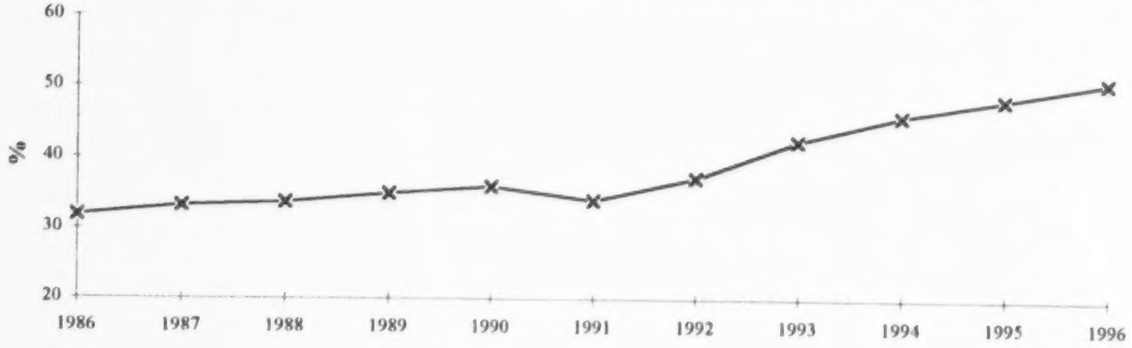
Domestic supply and apparent consumption of wood residues, chips and particles (Timber Committee estimates, September 1996 and October 1995)

	1994	1995	1996	Change 1995/96	
				Volume	Percent
		(1000 m3)			(%)
DOMESTIC SUPPLY					
EUROPE	52072	50733	48977	-1756	-3.5
of which:					
Sweden	9500	10200	9700	-500	-4.9
Finland	9710	10449	8800	-1649	-15.8
Germany	8200	8300	8300	0	0.0
RUSSIA		2750	2700	-50	-1.8
USA	104079	99351	100500	1149	1.2
APPARENT CONSUMPTION					
EUROPE	52468	53729	51006	-2723	-5.1
of which:					
Sweden	10054	10589	9900	-689	-6.5
Finland	10263	11011	9350	-1661	-15.1
Germany (source VDP)	4157	4604	4646	42	0.9
RUSSIA		2550	2500	-50	-2.0
USA	93803	92604	93300	696	0.8

Note: German consumption data apply to pulp industries only

Graph 48

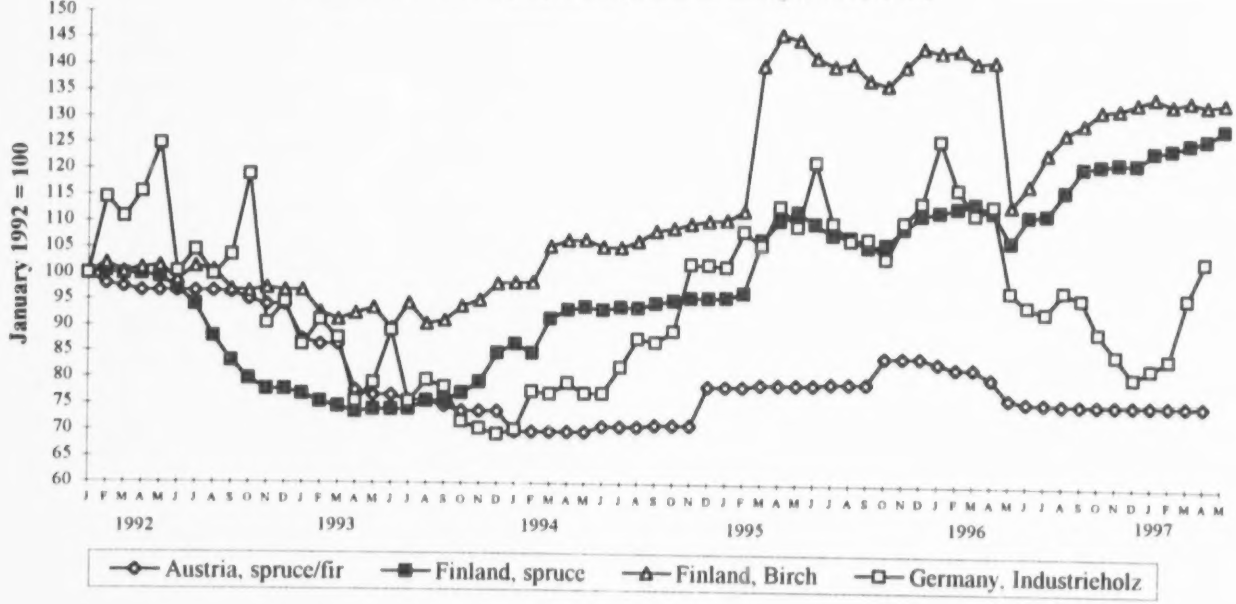
Germany, wood residues as % of wood consumption by pulp industry



Source: ZMP/VPD

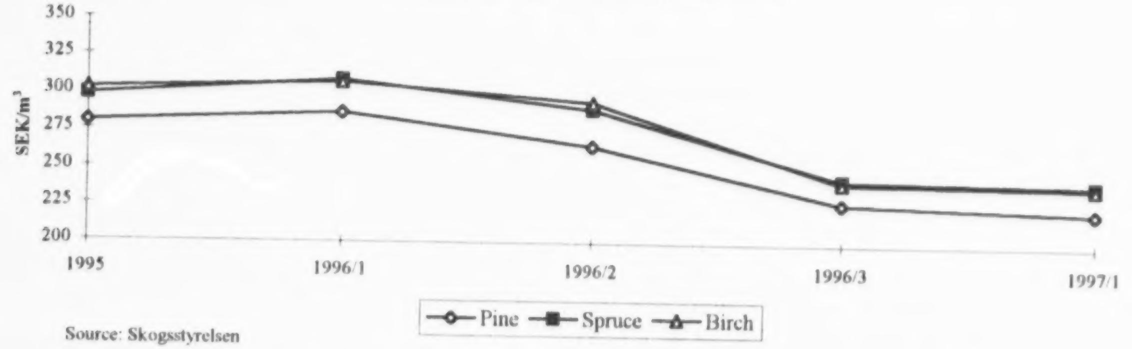
Graph 49

Trends for selected pulpwood prices in Europe, 1992-1996



Graph 50

Sweden: prices for round pulpwood



Source: Skogsstyrelsen

1996 and 1997 data are for four month periods

In Sweden the average stumpage price (whole country) for pulpwood fell from over 300 SEK/m^3 in the first third of 1996 to under 250 SEK/m^3 in the last third. Swedish chip prices also fell between January 1996 and the end of the year, by over 30 SEK/m^3 (graph 51).

In Germany and Austria, as well as other continental European countries, however, pulpwood prices were very low in 1996, hardly covering harvesting costs, although in Germany round pulpwood prices rose quite sharply from early 1997.

In Finland, prices for pine and birch pulpwood fell from their top levels in early 1996 until May 1996, and then partly recovered, stagnating thereafter. Spruce pulpwood however, rose between early 1996 and summer 1996, and has remained on the higher level since then. A possible reason for this anomalous trend (Finnish pulpwood requirements fell 3% in 1996, so price rises would not be expected) is that spruce pulpwood prices were influenced by demand for spruce sawlogs, as large pulpwood pieces were directed to sawmills.

Similar trends are apparent for prices of residues and chips, with a strong peak in prices in mid 1995 and a rather steep decline in the first half of 1996. In Germany there were signs of a recovery in prices in 1997 (graph 52). The price for chips exported from British Columbia, mostly to Japan, shows a similar pattern (graph 53).

The only assortment to show an increase in recorded removals was fuelwood, which grew by 3.8% (2.1 million m^3). The increase concerned only some countries in transition (Bulgaria, Czech Republic, Hungary, Romania) and Turkey, although it is possible that some other countries, such as Sweden (which does not report fuelwood removals on an annual basis) also saw an increase, linked to the increasing amount of energy derived from wood. The data published by NUTEK (the Swedish bio energy agency) show that prices of wood energy have been rather stable over the past four years, in nominal terms, which implies that in real terms they have fallen. The stability of the wood energy prices (in Swedish crowns per MWh, not per m^3) shown in the graph contrast quite strongly with the volatility shown by prices for round pulpwood and for wood residues for use as raw material (graph 54). Bio energy, which includes pulping liquors and peat as well as wood itself, account for about 18% of Sweden's energy supply.

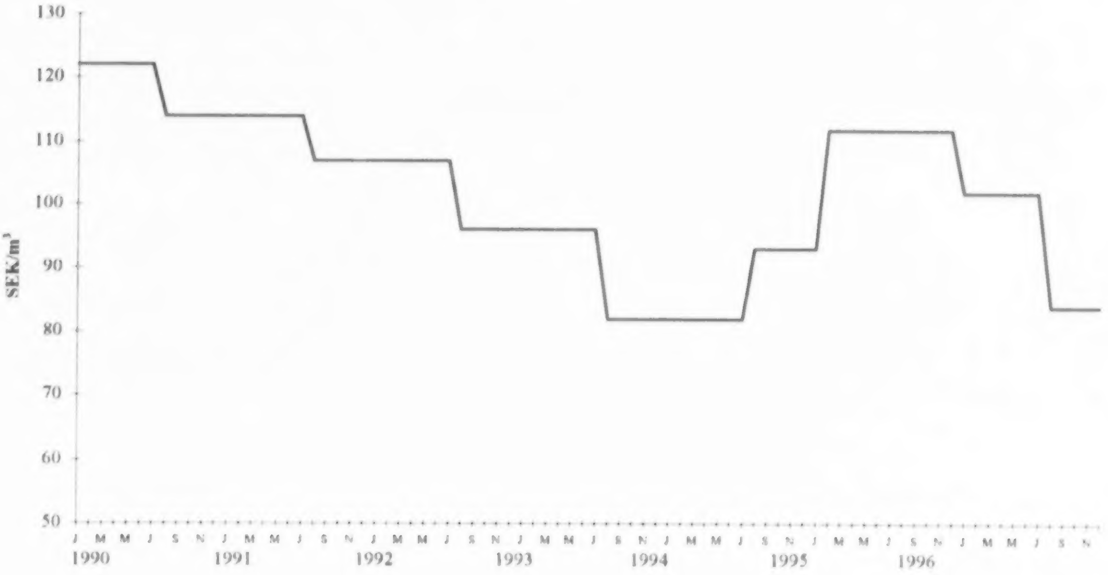
Sweden is one of the countries where the large scale, modern use of wood as energy is most developed in practice. In Sweden at least, energy can be said to be established as the "third market" for wood (after sawmills and pulp/panel mills), with significant volumes consumed, an infrastructure of enterprises, trade channels, market information, international trade etc., and which definitely interacts commercially with the first two markets. There, the prices of energy wood, which is generally of low quality, strongly influence raw material prices for the particle board industry, which also uses relatively low quality raw material. The fibre price for pulp manufacture is relatively little affected, as it is anyway much higher than the price for energy or particle board raw material. It remains to be seen how many other countries will also develop a significant organized wood energy sector.

Total *trade in residues and chips* has also fallen in Europe, by 4.2% for exports and 1.2% for imports (table 30). However, for exports, most of the fall is accounted for by one country, Germany, whose exports fell by a quarter, and for imports, France also shows a 24% drop. In most other countries, trade in residues was stable or grew, despite the low levels of pulpwood demand. This might be due to the price competitivity of this assortment, or to the increase in particle board production. North American exports of this assortment, mostly to Japan, increased, although United States exports were still well below the levels of 1993 and 1994.

Although it is no longer possible to distinguish between pulpwood and logs in the statistics for trade in "industrial wood in the rough", it is clear from table **33** that trade in round pulpwood has fallen sharply, in line with the depressed demand situation. Imports of wood in the rough by Finland, Norway and Sweden, all major pulpwood importers, fell by a total of over 6.6 million m^3 (well over a third) in 1996. This confirms the view that flows of traded raw material are more volatile than domestic supplies, as removals have not fallen as sharply. German exports of industrial roundwood, which include significant volumes of pulpwood to the Nordic countries were practically halved, falling 45% (2.2 million m^3) to 2.7 million m^3. Most other exporters showed declines, but the Czech Republic expanded its exports by 24%, to reach practical equality with Germany as the largest European roundwood exporter. It is not clear however to what extent these exports are of logs or of pulpwood.

Graph 51

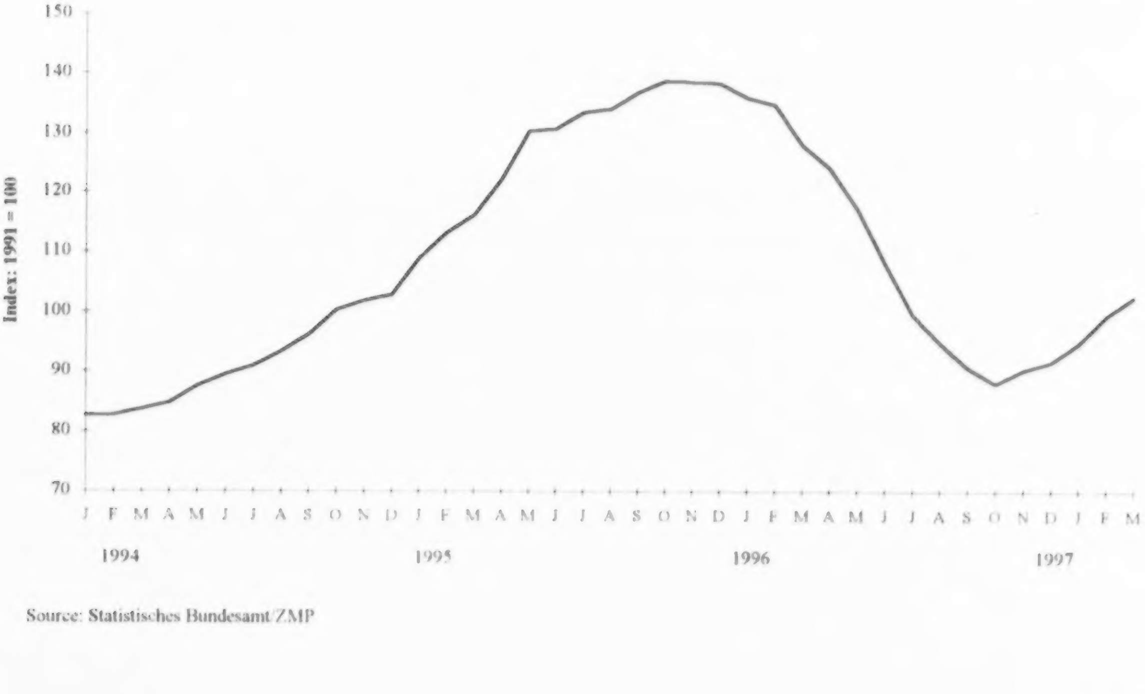
Sweden: prices of chips, central Sweden



Source: Skogsstyrelsen

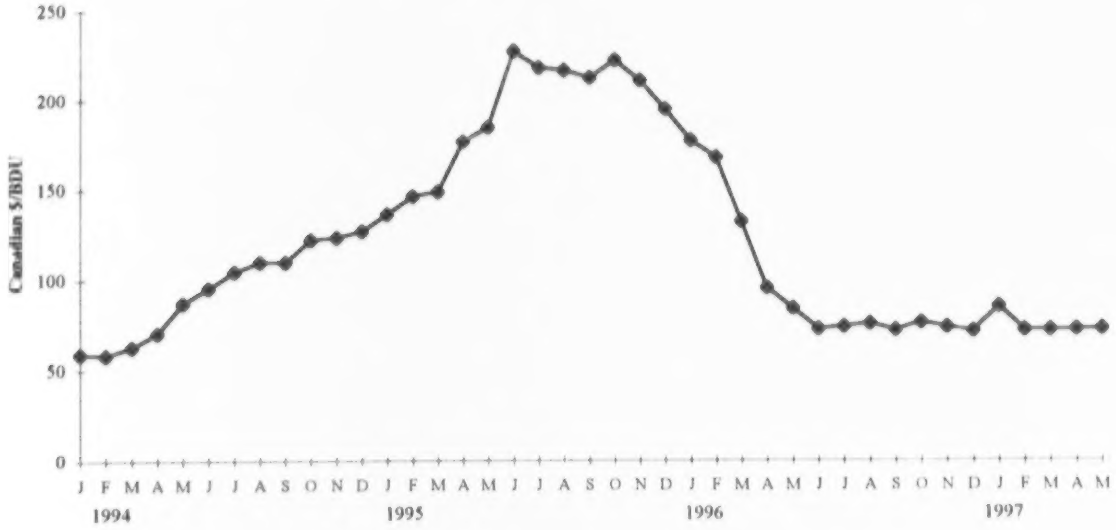
Graph 52

Germany: price index for wood residues and chips



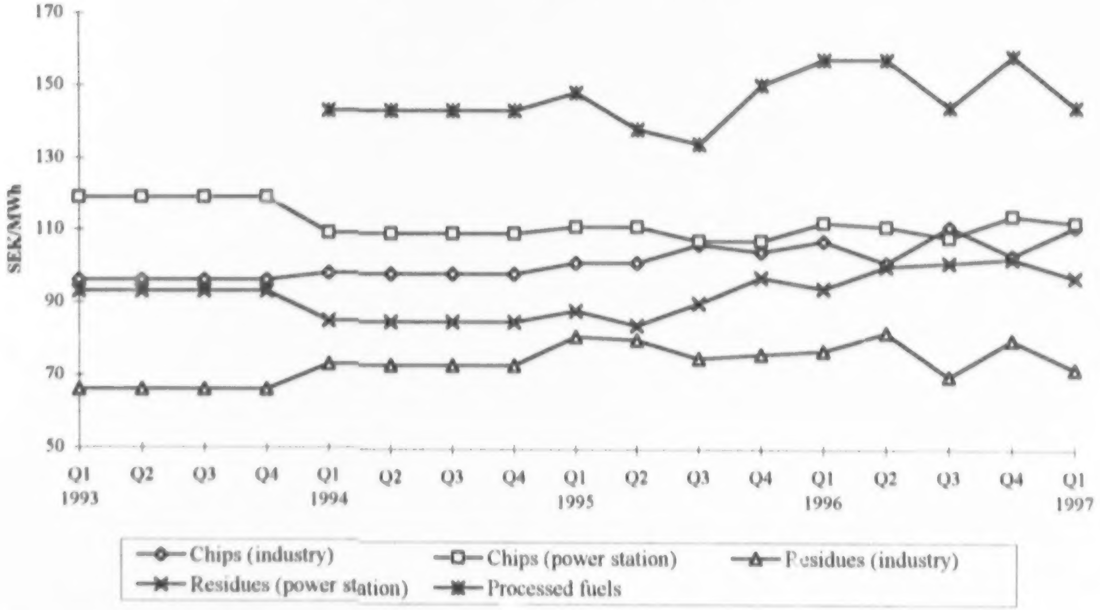
Source: Statistisches Bundesamt/ZMP

Graph 53
British Columbia: export unit value of coniferous wood chips



Source: Ministry of Forests, B.C.

Graph 54
Sweden: prices for wood energy



Source: NUTEK

Table 30

Exports and imports of wood residues, chips and particles, 1993 to 1996

	1993	1994	1995	1996 (prelim.)	Change 1995 to 1996	
					Volume	Percent
			(1000 m3)			(%)
EXPORTS						
EUROPE	6792	8632	7836	7511	-325	-4.2
of which :						
Austria	1060	1542	2120	2120	...	...
Germany	2272	3032	1878	1426	-452	-24.1
France	948	1122	1161	1253	92	7.9
Czech Republic	505	512	492	552	60	12.1
Belgium-Luxembourg	310	749	635	465	-170	-26.8
Sweden	295	235	271	311	40	14.8
Netherlands	366	417	321	268	-53	-16.5
Ireland	291	263	141	265	124	87.9
Switzerland	91	134	171	182	11	6.4
Finland	217	160	94	170	76	80.9
Other countries	437	466	552	499	-53	-9.6
Russian Federation	719	516	533	533	...	...
Canada	1177	1388	1488	1717	229	15.4
United States	6893	7523	5552	6135	583	10.5
North America	8070	8911	7040	7852	812	11.5
IMPORTS						
EUROPE	7740	10695	10209	10019	-190	-1.9
of which :						
Austria	2068	3023	2470	2470	...	...
France	811	1294	1552	1180	-372	-24.0
Italy	687	1088	1235	1155	-80	-6.5
Belgium-Luxembourg	543	1134	1196	1117	-78	-6.5
Sweden	508	775	686	777	91	13.3
Finland	657	646	582	740	158	27.1
Norway	382	453	520	664	144	27.7
Switzerland	611	662	608	603	-5	-0.8
Germany	712	766	453	326	-127	-28.0
United Kingdom	111	82	149	266	117	78.5
Other countries	650	772	759	721	-38	-5.0
Canada	588	1198	1344	933	-411	-30.6
United States	1389	789	1227	1353	126	10.3
North America	1977	1987	2571	2286	-285	-11.1
Japan	21833	23201	23201	23201	...	...

F. Japan

Japan, the world's second largest importer of forest products, increased imports in line with increased housing construction in 1996. Tropical timber imports of logs, sawnwood, panels and other wood products ceded a small percentage of market share to temperate wood imports, especially from North America, Europe and New Zealand. Japan continued the trend of diversifying its timber sources as well as diversifying its manufacturing base by continuing to build and invest in plants outside of Japan.

The year 1996 was forecast to have been better for the Japanese economy than it turned out to be. The highest level of housing starts since 1990, 1.6 million units, benefited from substantial government investment incentives (Japanese housing was covered in chapter 2). Japan's strong housing market in 1996 was attributed to a combination of factors including rebuilding following the Kobe earthquake, home buyers' rush to beat the 2% increase in the sales tax in April 1997, and the ongoing deregulation of the distribution system.

The significant depreciation of the yen over 1996 benefited exports of manufactured items, but hurt imports of forest products. Still the economic recovery failed to show the strength that was originally expected. The outlook for the Japanese economy as a whole in 1997 has again become uncertain, but the forecast reduction in housing starts, which is borne out by the mid-1997 statistics, indicates that the forecasts for decreased forest products imports in 1997 could be correct. This is a massive market which is undergoing structural change, like increased wood construction or more temperate wood imports and less tropical wood imports but the net result is still high levels of forest products demand.

It is worth noting that over the last 2 years, the import *prices* of most timber products, i.e. logs, sawnwood and plywood, have steadily increased in yen (not surprising given 20% depreciation). However, corresponding to the slowdown in housing construction forecast for 1997, the prices for many items began to level off in April 1997.

Japanese import tariffs have been a source of international contention, but they are being slowly phased out under the 1995 GATT Uruguay Round. Still tariff rates range from 0% on paulownia logs and sawnwood, to 14% on some thinner tropical plywood. Sawn and planed spruce-pine-fir tariffs are at 6% in 1997.

Log imports continued to fall in 1996, by 2.7%, after declining by 2.0% in 1995 (table 31). Log imports are still roughly twice sawnwood imports by volume. In contrast, by value (of all sources combined) in 1995 and in 1996, the value of log imports is less than those of sawnwood ($4.4 billion versus $4.9 billion).

Japanese *tropical* log imports continued declining, by 2.7% overall in 1996, due to increased softwood substitution and reduced domestic manufacturing of tropical sawnwood, veneer and plywood, down 4.2%, 9.6% and 0.5% respectively according to ITTO estimates.

There has been a marked change in the source of tropical logs. Imports of Asia Pacific logs halved during the 1990s, but African log imports, on much smaller volumes, increased by 27% in volume and 19% in value. Despite longer delivery times to Japanese ports, African species have gained general acceptance in Japan for plywood manufacturing. African species are appreciated for their light colour and fine texture, but are criticized for their high densities and corresponding difficulties in machining or peeling and drying.

In terms of Asia Pacific sources, log imports from Sarawak totalled 3.5 million m^3, or 60% of the total, but this was down 10.7% on 1996 (graph 55). Imports from Papua New Guinea stood at 1.9 million m^3, accounting for 32.0% of the total imports and an increase of about 17% from 1995. According to the Japan Southsea Lumber Conference in May, 1997, the one Asia Pacific source for optimism is PNG. PNG has an aggressive plan to increase all timber exports in order to gain needed schools, hospitals, infrastructure, cash revenues, etc., all of which are specifically written in contracts for timber concessions (source: personal discussions with Mr. Goodwill Amos, PNG National Forest Service).

Arrivals from the Solomons did not change at 0.3 million m^3. Imports from Sabah were small at only 23,000 m^3, up from 1995, but still an indication that Sabah's log export quota levels are not being reached. Additional small quantities were imported from Laos 22,000 m^3, and Myanmar 8,500 m^3.

More and more temperate logs are being imported and substituted, especially in plywood manufacturing, for tropical species. The United States still dominates the temperate log imports, but shipments decreased by 2%, to about 7 million m^3.

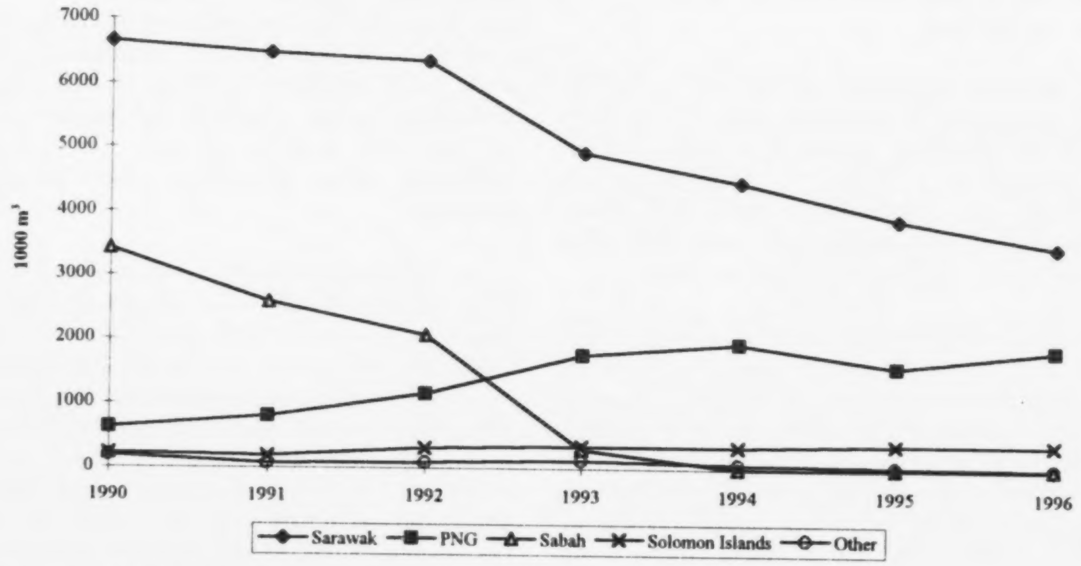
Table 31
Japanese log imports, 1995 and 1996

	Volume (1000 m^3)		% change	Value (in million $)		% change
	1995	1996	1996/1995	1995	1996	1996/1995
North America	7,275	7,043	-3.2	2,099	2,150	2.4
Asia Pacific	8,212	7,999	-2.6	1,473	1,511	2.6
Russian Federation	5,413	5,422	0.2	605	593	-2.0
Africa	525	667	27.1	127	152	19.2
Europe	511	203	-60.3	78	38	-51.9
Latin & South America	2	6	163.2	2	3	16.0
Total	21,938	21,339	-2.7	4,384	4,446	1.4

Source: *Japan Lumber Journal*, 1997

Graph 55

Japanese imports of Southsea logs, 1990 to 1996



Source: Japan Southsea Lumber Conference, 1997

In value terms, the United States logs, 71% of which was Douglas fir, were worth $2.1 billion. New Zealand recorded a significant increase by 14%, to slightly over 2 million m^3. Log imports from Russia maintained their 1995 level at 5.4 million m^3.

Temperate hardwood log imports from the United States, China and Russia were about half a million m^3, i.e. the same level as 1995. Of this total, oak was about a 40% share and came mostly from Russia at 143,720 m^3, United States 60,731 m^3 and China 7,878 m^3.

Log and sawnwood imports from *Russia* eased in the first quarter of 1997 as inventory levels at Japanese ports increased. The coniferous log species imported into Japan from Russia are spruce, fir, pine and larch.

Breakdown of Russian log imports into Japan in 1996
(1000 m^3)

	Total	of which	% change 1996/1995
Sawlogs and veneer logs	4585		-1.7
Spruce/fir		1602	-14.4
Larch		1481	+4.9
Pine		1450	+8.2
Cedar		52	+22.0
Pulp logs	469		+12.2
Spruce/pine/fir		252	-11.6
Larch and cedar		217	+63.2
Posts and pilings	11		+76.2
Total	5065		-0.5

Source: Japan Lumber Importers' Association

The Japanese imports of Russian sawlogs and veneer logs are forecast by the Japan Lumber Importer' Association to level out in 1997. A barter trade of Russian logs for Japanese harvesting, forwarding and road building machines was described by *Japan Lumber Journal* to have a cash value of $100 million. However exchanges of plant and associated machinery for forest products both in Russia and developing countries is not new for the Japanese.

Japanese *sawnwood* imports rose overall by 5.8% in volume and 4.3% in value from 1995 to 1996 (table 32 and graph 56). Imports from North America, which dropped by 11% in 1995 rose 6.8% to 7.3 million m^3. A reduction in tariffs and Japans acceptance of North American grade stamps have aided sales of United States and Canadian sawnwood.

Tropical *sawnwood imports* decreased 7.6% in volume in 1996, but by less in value. Buried in the totals (tropical plus temperate) of the table, "Japanese sawnwood imports, 1995 to 1996" are great changes, often due partly to currency fluctuations, from 1995 to 1996 in temperate sawnwood sources. For example the United States reduced sawnwood exports to Japan by 40%, to 1.2 million m^3 due to strong United States domestic demand and a strengthened dollar, although their value rose 5%. Canada's sawnwood exports to Japan increased 27% to 6.1 million m^3, but only by 4.5% in value. On a smaller volume, 0.3 million m^3, imports from New Zealand fell in volume but increased slightly in value. Imports from Russia fell slightly, by 4.2% to 0.4 million m^3.

The 1996 *European* exports to Japan were not completely homogenous, as countries appear to be specializing in different forest products. For example in the section earlier on logs, it was mentioned that Denmark is exporting beech logs to Japan and *Japan Lumber Journal* reported that the majority of beech logs came from Denmark. Germany found a market niche for Douglas fir logs in Japan. Finland was the major European exporter of spruce and/or fir logs, although Germany and others also exported spruce/fir logs. Finland was also dominant in sawnwood exports, as were in descending order by volume: Sweden, Austria, Norway, Germany, Italy, Denmark, Netherlands, Spain, France, United Kingdom, Belgium, Greece and Turkey (graph in section B (v)). Although not listed, many countries are also selling higher value-added products to Japan like millwork, mouldings and glulam beams.

Many central and eastern European countries were also listed as sources for mainly sawnwood, to Japan, including: Czech Republic, Poland, Slovakia, Hungary, Slovenia and Georgia. Of course Russia is a major log and sawnwood source for Japan. The Baltic Countries are present in this new market too: Estonia has exported spruce/fir logs; and both Latvia and Lithuania have exported planed sawnwood.

New Zealand trade associations have mounted a campaign to upgrade the image and use of radiata pine sawnwood from a pallet and shipping container material to a higher-valued construction material. Japan, which has the world's largest trade surplus for manufactured goods, consumes approximately 2 million m^3 of wood products per year for crating and packaging. Some 50 million pallets per year are produced.

Hardwood sawnwood imports were 367,600 m^3, down 1.5% from 1995. Of this total, United States sawnwood was 204,539 m^3, a decrease of 11.4% from 1995. The fall in American imports was compensated by increased hardwood sawnwood imports from China, 40% of which is oak, which increased 11.5% in volume over 1995. The drop in United States imports is attributed to the rise in the value of the United States dollar. As oak prices were higher than other species, the volume of oak imports dropped considerably as lower-priced species were substituted.

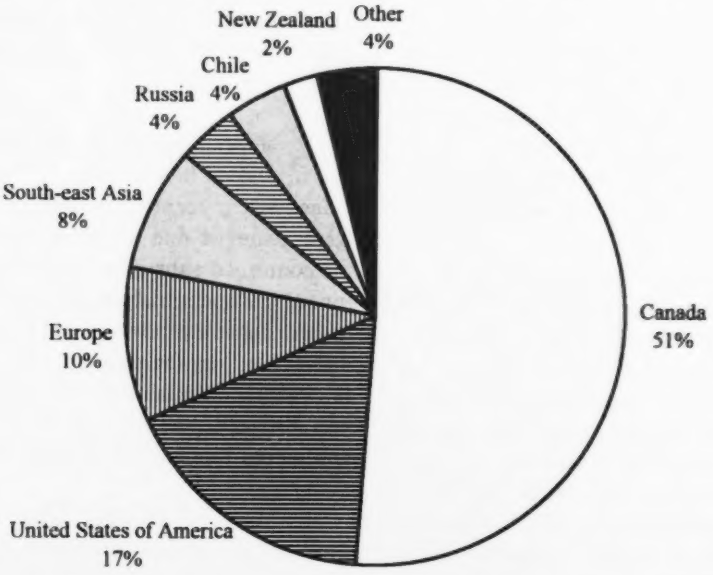
In 1996, 47% of the total *plywood* demand in Japan was domestically produced (mostly from imported logs) and 53% was imported. The 1997 plywood demand will not only be affected by the decreased demand for housing, but also the weaker yen and substitution by composite panel products like OSB, MDF and particle board.

Table 32
Japanese sawnwood imports, 1995 and 1996

	Volume (1000 m³)		% change	Value (in million $)		% change
	1995	1996	1996/1995	1995	1996	1996/1995
North America	6,802	7,267	6.8	2,914	3,051	4.7
Asia Pacific	2,534	2,335	-7.9	1,370	1,311	-4.3
Europe	866	1,235	42.5	297	415	39.8
Russian Federation	425	407	-4.3	99	97	-2.0
Latin & South America	29	32	10.1	16	22	38.2
Africa	5	5	15.1	3	4	9.6
Total	10,661	11,281	5.8	4,699	4,899	4.3

Source: *Japan Lumber Journal*, 1997

Graph 56
Japanese worldwide coniferous sawnwood import sources, 1996



Source: *Japan Lumber Journal*, 1997

The Japan Plywood Manufacturers' Association reported that production of plywood in 1996 dropped by 1.8% compared to that of 1995. There has been a continuous decline in plywood production over the past nine years. However production of 4mm thickness increased 5.1%. Stocks of plywood increased by 4.7% to a level of 82.7 m² at the end of 1996.

According to the ITTO *Market News Service* the following raw material sources were used for plywood manufacture. There is a decreasing dependence upon tropical species, although they still dominate.

Log imports for plywood manufacture
(1000 m³)

	1993	1994	1995	1996
Tropical	6,969	6,040	5,512	5,000
Russian	356	642	727	1,100
New Zealand	218	2333	314	400
Others	118	86	123	100
Total	7,661	7,001	6,676	6,600

Source: ITTO Market News Service, 1997

The raw materials needed for plywood production in 1997 have been forecast by a *Market News Service* report to be 91% of the volume that was used in 1996. Softwoods will feature more prominently in the mix, making up to 30% of the total raw material needs. In mid 1997, softwood plywood production, totally or partly produced from softwood logs and imported softwood veneer, was up 87% on the same period of 1996. Combination softwood and hardwood plywood decreased by around 27% to 144,000 m^3.

Due to strong demand for housing and reduced domestic production as mentioned above, plywood imports rose in 1996 to a record 5.3 million m^3, up almost 21% on 1995. The main *sources of plywood*, in order of volume imported in 1996, were: Indonesia, Malaysia, Canada, United States, New Zealand, Taiwan and Brazil (graph 57). The imports from Indonesia dwarf the other sources and have steadily averaged 3.1 million m^3 from 1992 to 1996, the period of the accompanying graph.

Although the sources of imported plywood are changing, Indonesia dominates with a 62% market share of imports, at 3.3 million m^3, 8% higher than in 1995, but down from the peak of 3.4 million m^3 in 1993. Malaysian plywood has increased market share, by 56% between 1995 and 1996, to 1.5 million m^3.

There was also a sharp expansion of imports of softwood plywood in 1996 from Canada (up 43%), the United States (up 21%) and New Zealand (up 24%), though the total quantity is still small compared to tropical wood-based plywood. Softwood plywood is used mainly for structural purposes and has gained acceptance in the Japanese market. Apparently a health conscious market niche has welcomed the low-formaldehyde Canadian plywood, some of which comes from Japanese investments in British Columbia plants which make the 3-foot by 6-foot size desired by the Japanese market. Domestically produced softwood plywood is mainly from Russian larch logs and radiata pine logs.

Prices of domestic and import plywood responded accordingly to the high demand and increased 17% during 1996 for the domestic-produced bellwether half-inch (11.5 mm) plywood. Domestic plywood producers were hurt by the weakened yen and the resulting high cost of tropical logs. However prices for imported plywood increased approximately 10%. Rising prices of tropical plywood have resulted in increasing imports of softwood plywood.

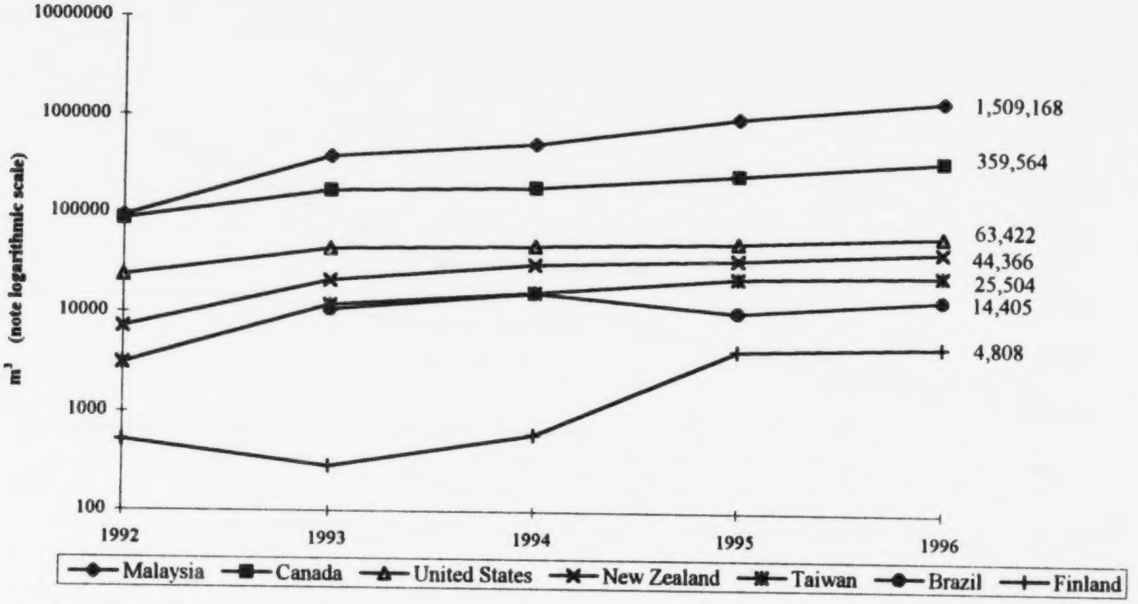
In 1997 plywood imports are projected to decline but in the first quarter Japan's imports of plywood were still running at a high level. A report by the Japan Plywood Manufacturers' Association, based on customs statistics, shows plywood imports for February increased almost 30% compared to the same period last year. Imports for the first two months of the year increased by over 50% compared to the same period last year. This increase is having a negative impact on the domestic plywood market.

The Japanese *panel* (excluding plywood) market continues to evolve from domestic production to imports (graphs 58 and 59). In 1996, 53% of the domestic consumption was from domestic production, which like plywood, is changing, from hardwood to softwood. In 1996 approximately 30% of the production was softwood according to *Widman's World Wood Review*. MDF continues to substitute for solid wood applications which has led to increased veneer consumption for overlays in both Japan and elsewhere in Southeast Asia. Japan's increased consumption of OSB helped alleviate an oversupply situation in North America in 1996.

Production of particle board, MDF, hardboard and insulation board hit record highs in 1997 and sales value was a record 100 billion yen. These records were achieved due to the strong housing demand and the continued substitution of composite wood products for solid wood which in part was due to more moderate prices. Japan's production of MDF for last year totalled 401,412 m^3, an increase of 27% in volume and of 24% in value. Production of particle board, used in prefabricated houses and for home equipment and appliances totalled 1.3 million m^3, an increase of 2%.

Imports of *OSB* were above 200,000 m^3 in 1996, which is about double that of the preceding year. They come from a number of sources, including some mills in Canada with Japanese investment. In addition there are some North American mills that have JAS certification. North American OSB markets are oversupplied, thus the interest in exports to Japan. OSB was first used for packaging in Japan, but now is used for underlays and wall panels in residential housing although one of the main criticisms of OSB is its low water resistance and consequent swelling. In terms of price, plywood is at yen 60,000-70,000 per m^3 and OSB is at around yen 50,000. In addition OSB suppliers offer discounts of 15% below the list prices for quantities over 535 m^3.

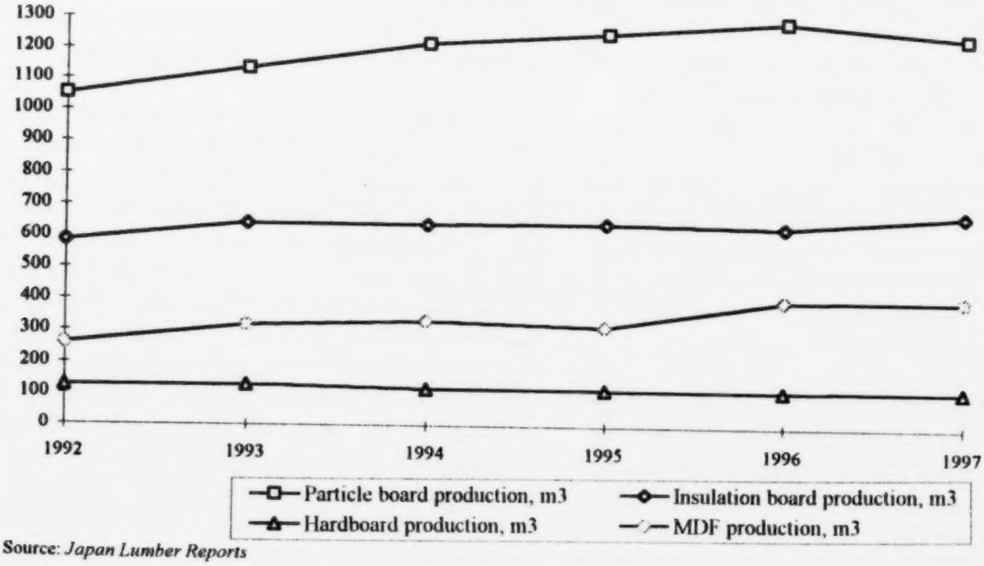
Graph 57
Japanese sources of imported plywood (without Indonesia*), 1992-1996



Source: Ministry of Finance "Trade Statistics"

*Note: Indonesian plywood imports averaged 3.1 million m³ from 1992 through 1996.

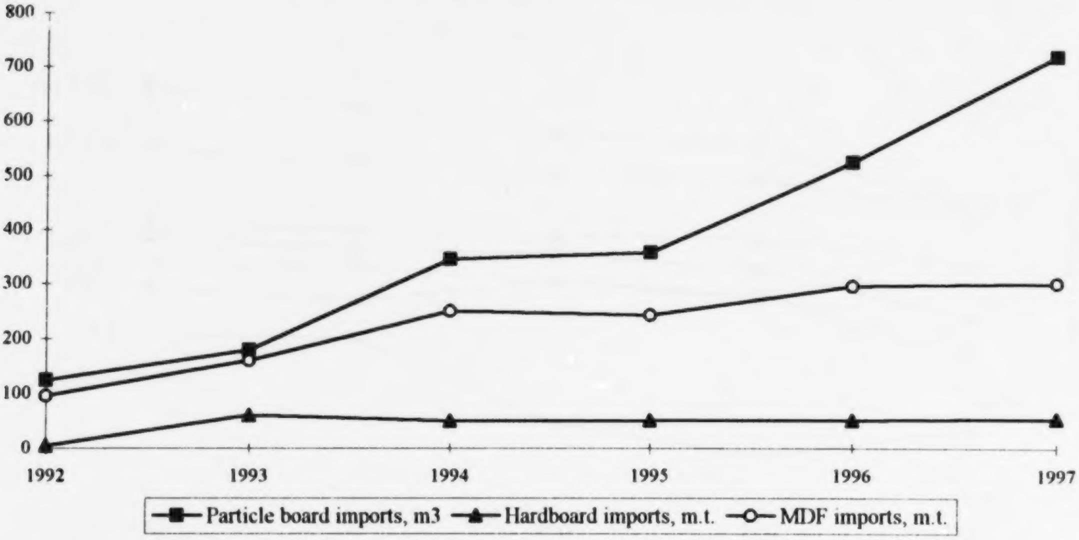
Graph 58
Japanese production of panel products, 1992 to 1997



Source: *Japan Lumber Reports*

Graph 59

Japanese imports of panel products, 1992 to 1997



Source: *Japan Lumber Reports*

Beyond plywood and panels, markets for *engineered wood products* have grown as Japanese consumers gradually shift away from solid sawnwood. Consumption of glulam beams has led to both increased domestic production and imports (graph 60). As Japanese builders search for alternatives to domestically produced solid-sawn timber, the post and beam housing market sector is becoming more important to a broader range of materials and suppliers.

Glulam imports benefited from their successful trial in the Great Hanshin Earthquake and the following rise in demand for housing construction in 1996. Imports rose 57%, to 231,405 m^3 according to the Japan Laminated Lumber Manufacturers' Association. Countries with over 10,000 m^3 of exports to Japan were: United States 119,365 m^3 (up 50% over 1995); Sweden 33,394 m^3 (up 105% Canada 27,951 m^3 (up 46%). In an article in *Japan Lumber Journal*, the Japan Laminated Lumber Manufacturers's Association expressed concern about potential oversupply in 1997 since the import tariff will drop to 8% from 11.5% in 1996.

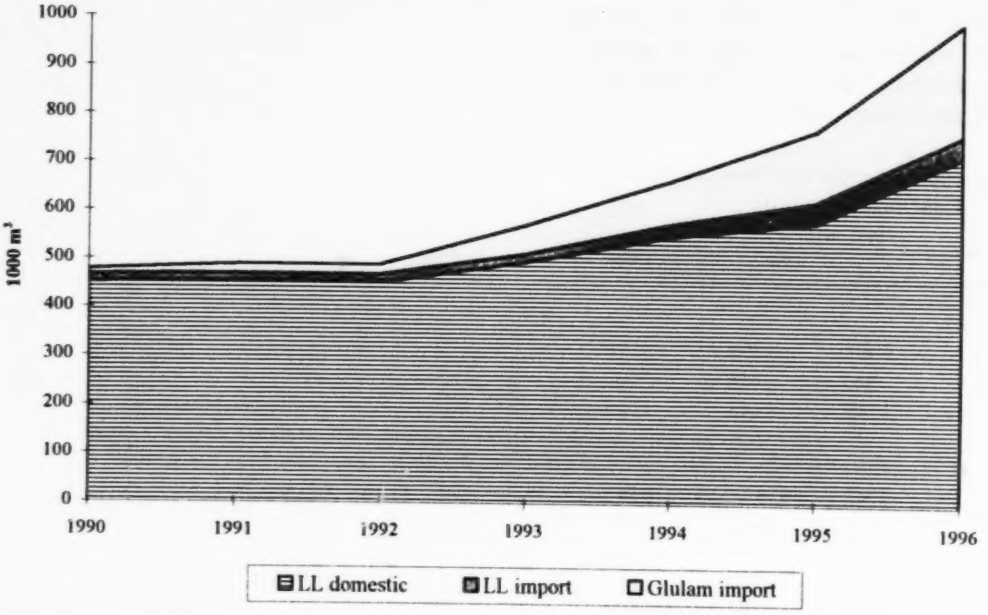
Laminated veneer lumber (LVL) was in high demand in 1996, up roughly 50% to 251,000 m^3 compared to 1995, due to the strong pull from housing (graph 61). The volume from the 13 domestic LVL manufacturers rose by 24% to 168,000 m^3, of which 73% was hardwood. Consumption of LVL is about evenly split between hardwood and softwood, most imported LVL being coniferous and most domestic production being hardwood.

A main difference between LVL and plywood is that in LVL the grain of all plys are aligned in the same direction. However, some specialty LVLs occasionally contain some cross plys, thereby gaining additional strength and stability characteristics and simultaneously blurring the distinction between the two products. About 90% of LVL is used in Japan for fittings and fixtures, e.g. doors, staircases and house components; the remainder was used in furniture. The market for structural applications is growing fast, up 63.4% over 1995, due to promotions of the advantages of dimensional stability of this dry product.

Japan's wood construction is mainly post and beam construction, typically with air-dried solid wood. More and more, kiln-dried, laminated pieces are replacing the solid wood. LVL, glulam, fingerjointed and now composite or laminated posts are finding market acceptance and some 730 *precut plants* will cut-to-size and mitre and bore posts before delivery to the building site. The demand for pre-machined parts from the precut plants is due to the reduced skill of carpenters on-site, greater accuracy, no waste disposal problems at the site and an apparent difficulty in working with kiln-dried material on-site. Besides post and beams, the precut plants are also producing wall panels of 2x4 with plywood. The post and beam housing market penetration is forecast at 30% or 400,000 m^3 in 1997 by *Widman's World Wood Review*.

Graph 60

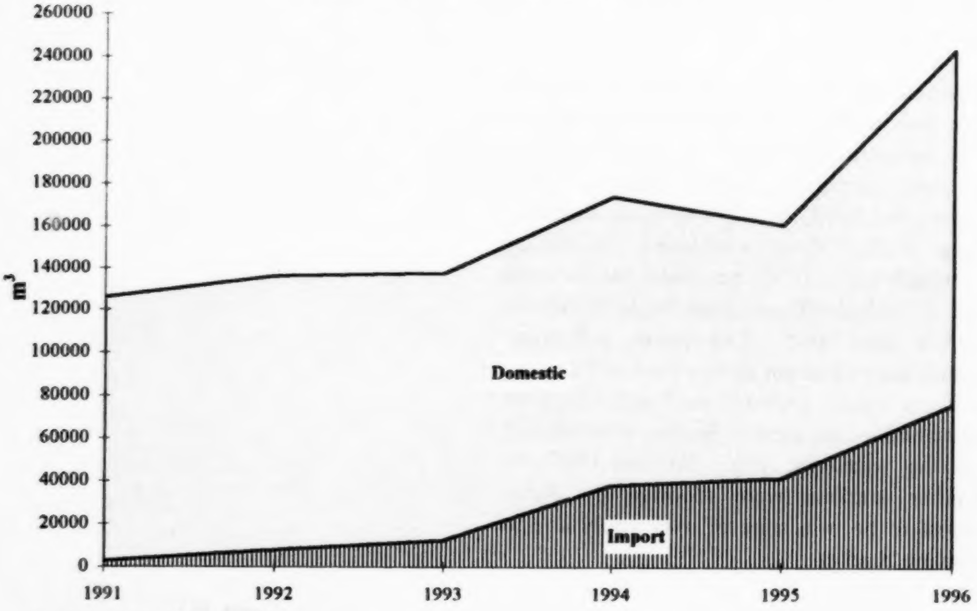
Japanese laminated lumber and glulam production and imports, 1990-1996



Source: Japan Laminated Lumber Manufacturers' Association and Ministry of Finance "Trade Statistics".

Graph 61

Japanese LVL consumption, 1991-1996



Source: All Japan LVL Association

Projections for imports for 1997 have been made by the Timber Supply and Demand Conference's Forecasting Section. In total imports are forecast to be down by 3% from 1996 to 34.1 million m^3. Of the grand total 112.9 million m^3 wood products demand, the supply from domestic sources will be down about 2.1% and the import volume will be down about 1%.

Japan Foreign Timber Supply and Demand General Conference forecasts
(1000 m^3)

Region	1995	1996	1997
Southsea and African			
Logs-P	6001	5598	5284
Logs-S	847	696	632
Sawnwood	1349	1245	1220
North American			
Logs	7143	6858	6585
Sawnwood	7467	7631	7355
Russian-softwood only			
Logs	4934	5190	5300
Sawnwood	397	412	400
New Zealand-Chile			
Logs	1779	1829	1900
Sawnwood	739	687	650
Total			
Logs	20704	20171	19701
Sawnwood	9952	9975	9625

Note: "Logs-P" are for plywood; Logs-S are sawlogs.
Source: *Japan Lumber Journal*

Sawnwood and log prices levelled off in *early 1997*. There was a flurry of home buying activity spurred on by industry promotions to entice buyers to commit to house purchases before October 1996, thereby avoiding the April 1997 2% sales tax increase. Corresponding to this there was heavy buying of sawnwood through early 1997, but when the demand had been met, it slacked off and prices began to fall for North American sawnwood. Log prices and semi-finished product prices had not shown the same decline by the time of this report. Demand for North American logs and sawnwood is projected to decline with reduced housing and the weakened yen. At mid-1997 the Japanese timber markets were reported by *Japan Lumber Journal* to be in a state of oversupply due to the weak housing market.

ANNEX

Table 1

CONIFEROUS SAWNWOOD - SCIAGES RESINEUX

APPARENT CONSUMPTION - CONSOMMATION APPARENTE

Country	Total (1000 m3)			Per capita (m3/1000 capita)			Pays
	1994	1995	1996	1994	1995	1996	
Albania	8	8	8	2	2	2	Albanie
Austria	3693	3912	3912	460	486	486	Autriche
Belgium-Luxembourg	1747	1941	1966	167	184	186	Belgique-Luxembourg
Bulgaria	176	176	176	21	21	21	Bulgarie
Cyprus	89	89	90	122	121	121	Chypre
Czech Republic	2000	1808	1944	193	175	188	République tchèque
Denmark	2562	2159	1876	493	413	357	Danemark
Finland	2706	2186	2275	532	428	444	Finlande
France	7879	8003	8201	136	138	141	France
Germany	16134	15930	15881	198	195	194	Allemagne
Greece	583	583	583	56	56	56	Grèce
Hungary	786	795	825	77	78	81	Hongrie
Iceland	66	66	66	244	244	244	Islande
Ireland	795	742	662	222	206	184	Irlande
Israel	369	369	369	68	67	65	Israël
Italy	5596	5363	5330	98	94	93	Italie
Malta	14	14	14	39	38	38	Malte
Netherlands	2973	2515	2712	193	163	175	Pays-Bas
Norway	2353	2121	2440	545	486	557	Norvège
Poland	3393	3781	3560	88	98	92	Pologne
Portugal	730	764	822	74	77	83	Portugal
Romania	437	384	369	19	17	16	Roumanie
Slovakia	110	82	189	20	15	35	Slovaquie
Spain	2975	3585	3609	76	91	92	Espagne
Sweden	3327	4591	2637	379	520	298	Suède
Switzerland	1581	1736	1590	226	247	225	Suisse
Turkey	2305	2504	2504	38	41	40	Turquie
United Kingdom	10108	7005	7341	173	120	125	Royaume-Uni
Other countries	378	362	337	16	15	14	Autres pays
EUROPE	75872	73575	72287	133	128	125	EUROPE
Russian Federation	19353	16931	14055	131	114	95	Fédération de Russie
Canada a/	16415	12542	13086	561	424	437	Canada a/
United States a/	113723	112007	118422	436	426	444	Etats-Unis a/
NORTH AMERICA	130138	124549	131508	449	425	444	AMERIQUE DU NORD
Japan	31920	31920	31920	255	255	254	Japon

a/ Home produced sleepers included.

a/ Y compris la production domestique de traverses.

ANNEX

Table 2

BROADLEAVED SAWNWOOD - SCIAGES FEUILLUS

APPARENT CONSUMPTION - CONSOMMATION APPARENTE

Country	Total (1000 m3)			Per capita (m3/1000 capita)			Pays
	1994	1995	1996	1994	1995	1996	
Albania	3	3	3	1	1	1	Albanie
Austria	312	262	262	39	33	33	Autriche
Belgium-Luxembourg	715	678	759	68	64	72	Belgique-Luxembourg
Bulgaria	42	42	42	5	5	5	Bulgarie
Cyprus	24	21	21	33	28	28	Chypre
Czech Republic	314	370	398	30	36	39	République tchèque
Denmark	247	251	250	48	48	48	Danemark
Finland	61	143	100	12	28	20	Finlande
France	2657	2779	2692	46	48	46	France
Germany	1566	1568	1406	19	19	17	Allemagne
Greece	141	141	141	14	13	13	Grèce
Hungary	290	94	75	28	9	7	Hongrie
Iceland	4	4	4	15	15	15	Islande
Ireland	100	84	41	28	23	11	Irlande
Israel	23	23	23	4	4	4	Israël
Italy	2669	2748	2431	47	48	42	Italie
Malta	8	8	8	22	22	22	Malte
Netherlands	743	722	684	48	47	44	Pays-Bas
Norway	62	58	54	14	13	12	Norvège
Poland	632	805	630	16	22	16	Pologne
Portugal	502	534	550	51	54	55	Portugal
Romania	572	650	439	25	29	19	Roumanie
Slovakia	201	112	98	38	21	18	Slovaquie
Spain	1276	1457	1194	33	37	30	Espagne
Sweden	276	323	298	31	37	34	Suède
Switzerland	140	175	134	20	25	19	Suisse
Turkey	1707	1827	1827	28	30	29	Turquie
United Kingdom	681	668	742	12	11	13	Royaume-Uni
Other countries	167	159	164	7	7	7	Autres pays
EUROPE	16136	16767	15471	28	29	27	EUROPE
Russian Federation	6017	3712	3017	41	25	20	Fédération de Russie
Canada	1042	1216	982	36	41	33	Canada
United States	27428	27547	27894	105	105	105	Etats-Unis
NORTH AMERICA	28470	28763	28876	98	98	97	AMERIQUE DU NORD
Japan	4511	4511	4511	36	36	36	Japon

ANNEX

Table 3

PARTICLE BOARD - PANNEAUX DE PARTICULES

APPARENT CONSUMPTION - CONSOMMATION APPARENTE

Country	Total (1000 m3)			Per capita (m3/1000 capita)			Pays
	1994	1995	1996	1994	1995	1996	
Albania	2.0	2.0	2.0	0.6	0.6	0.6	Albanie
Austria	921.0	784.0	784.0	114.7	97.4	97.4	Autriche
Belgium-Luxembourg	723.0	1195.8	1381.9	68.9	113.3	131.0	Belgique-Luxembourg
Bulgaria	127.0	127.0	127.0	15.0	15.1	15.1	Bulgarie
Cyprus	41.0	42.0	42.0	56.2	56.8	56.8	Chypre
Czech Republic	400.0	437.0	503.3	38.7	42.3	48.8	République tchèque
Denmark	602.0	584.0	560.0	115.8	111.7	106.5	Danemark
Finland	289.0	277.0	303.0	56.8	54.2	59.2	Finlande
France	2390.0	2423.4	2346.0	41.3	41.7	40.2	France
Germany	9032.0	9412.0	8831.0	110.9	115.3	107.8	Allemagne
Greece	262.0	262.0	262.0	25.1	25.1	25.0	Grèce
Hungary	312.1	345.6	288.9	30.4	33.8	28.4	Hongrie
Iceland	15.0	15.0	15.0	55.6	55.6	55.6	Islande
Ireland	89.0	96.0	132.0	24.9	26.7	36.7	Irlande
Israel	124.0	124.0	124.0	23.0	22.4	21.8	Israël
Italy	2427.0	2699.0	2454.0	42.4	47.1	42.8	Italie
Malta	12.0	12.0	12.0	33.3	32.4	32.4	Malte
Netherlands	664.0	628.0	576.0	43.2	40.6	37.1	Pays-Bas
Norway	233.3	239.0	237.0	54.0	54.8	54.1	Norvège
Poland	1400.0	1741.0	1841.0	36.3	45.1	47.7	Pologne
Portugal	357.0	449.0	468.0	36.1	45.3	47.2	Portugal
Romania	222.0	241.3	288.4	9.8	10.6	12.8	Roumanie
Slovakia	212.0	235.0	225.0	39.6	43.8	41.9	Slovaquie
Spain	1855.1	1997.5	2172.3	47.3	50.9	55.3	Espagne
Sweden	655.0	792.0	830.0	74.6	89.7	93.9	Suède
Switzerland	443.0	441.0	368.0	63.4	62.6	52.1	Suisse
Turkey	929.0	1236.0	1186.0	15.3	20.1	18.9	Turquie
United Kingdom	2780.0	3054.0	3083.0	47.6	52.1	52.6	Royaume-Uni
Other countries	434.2	399.6	412.6	18.2	16.7	17.2	Autres pays
EUROPE	27952.7	30291.2	29855.4	48.8	52.7	51.7	EUROPE
Russian Federation	2624.6	2054.0	1297.0	17.7	13.9	8.8	Fédération de Russie
Canada	1277.4	1236.5	1863.0	43.7	41.8	62.2	Canada
United States	17764.0	18203.0	19675.0	68.2	69.2	73.8	Etats-Unis
NORTH AMERICA	19041.4	19439.5	21538.0	65.7	66.4	72.6	AMERIQUE DU NORD
Japan	1564.0	1564.0	1564.0	12.5	12.5	12.4	Japon

a/ Including non-wood particle board.

a/ Y compris les panneaux de particules non-dérivés du bois.

ANNEX
Table 4

PLYWOOD - CONTREPLAQUES

APPARENT CONSUMPTION - CONSOMMATION APPARENTE

Country	Total (1000 m3)			Per capita (m3/1000 capita)			Pays
	1994	1995	1996	1994	1995	1996	
Albania	6.0	6.0	6.0	1.8	1.8	1.8	Albanie
Austria	96.0	136.0	136.0	12.0	16.9	16.9	Autriche
Belgium-Luxembourg	201.0	125.6	194.9	19.2	11.9	18.5	Belgique-Luxembourg
Bulgaria	14.0	14.0	14.0	1.7	1.7	1.7	Bulgarie
Cyprus	10.0	8.7	8.7	13.7	11.8	11.8	Chypre
Czech Republic	36.0	67.0	59.0	3.5	6.5	5.7	République tchèque
Denmark	145.0	171.0	149.0	27.9	32.7	28.3	Danemark
Finland	91.0	130.0	97.0	17.9	25.4	18.9	Finlande
France	635.5	635.7	578.9	11.0	10.9	9.9	France
Germany	1269.0	1526.0	1923.0	15.6	18.7	23.5	Allemagne
Greece	59.0	59.0	59.0	5.7	5.6	5.6	Grèce
Hungary	7.4	19.0	15.1	0.7	1.9	1.5	Hongrie
Iceland	1.0	1.0	1.0	3.7	3.7	3.7	Islande
Ireland	53.0	67.0	38.0	14.8	18.6	10.6	Irlande
Israel	117.0	117.0	117.0	21.7	21.1	20.5	Israël
Italy	576.0	645.0	527.0	10.1	11.3	9.2	Italie
Malta	8.0	8.0	8.0	22.2	21.6	21.6	Malte
Netherlands	473.0	495.0	481.0	30.8	32.0	31.0	Pays-Bas
Norway	73.5	72.1	78.0	17.0	16.5	17.8	Norvège
Poland	68.0	93.0	69.0	1.8	2.4	1.8	Pologne
Portugal	33.0	32.0	30.1	3.3	3.2	3.0	Portugal
Romania	43.2	26.1	36.7	1.9	1.2	1.6	Roumanie
Slovakia	16.5	18.1	7.2	3.1	3.4	1.3	Slovaquie
Spain	178.2	198.9	168.9	4.5	5.1	4.3	Espagne
Sweden	162.0	157.0	162.0	18.5	17.8	18.3	Suède
Switzerland	144.2	136.3	128.0	20.6	19.4	18.1	Suisse
Turkey	132.0	148.0	134.0	2.2	2.4	2.1	Turquie
United Kingdom	1184.0	1107.0	1110.0	20.3	18.9	18.9	Royaume-Uni
Other countries	348.4	177.1	178.4	14.6	7.4	7.4	Autres pays
EUROPE	6180.9	6396.6	6514.9	10.8	11.1	11.3	EUROPE
Russian Federation	327.0	269.0	309.0	2.2	1.8	2.1	Fédération de Russie
Canada	1611.0	1366.0	1364.0	55.1	46.1	45.5	Canada
United States	17581.0	17514.0	17638.0	67.4	66.6	66.2	Etats-Unis
NORTH AMERICA	19192.0	18880.0	19002.0	66.2	64.5	64.1	AMERIQUE DU NORD
Japan	8901.0	8901.0	8901.0	71.2	71.1	70.8	Japon

ANNEX

Table 5

FIBREBOARD - PANNEAUX DE FIBRES

APPARENT CONSUMPTION - CONSOMMATION APPARENTE

Country	Total (1000 m3)			Per capita (m3/1000 capita)			Pays
	1994	1995	1996	1994	1995	1996	
Austria	92.0	86.2	86.2	11.5	10.7	10.7	Autriche
Belgium-Luxembourg	168.6	159.3	169.3	16.1	15.1	16.0	Belgique-Luxembourg
Bulgaria	61.0	61.0	61.0	7.2	7.3	7.3	Bulgarie
Cyprus	32.4	29.5	29.5	44.4	39.9	39.9	Chypre
Czech Republic	52.0	69.0	92.9	5.0	6.7	9.0	République tchèque
Denmark	101.0	106.0	102.1	19.4	20.3	19.4	Danemark
Finland	89.0	94.0	108.0	17.5	18.4	21.1	Finlande
France	280.5	281.0	284.0	4.8	4.8	4.9	France
Germany	937.0	975.0	842.0	11.5	11.9	10.3	Allemagne
Greece	127.0	127.0	127.0	12.2	12.2	12.1	Grèce
Hungary	19.1	33.8	33.0	1.9	3.3	3.2	Hongrie
Iceland	5.0	5.0	5.0	18.5	18.5	18.5	Islande
Ireland	101.5	150.0	123.0	28.4	41.7	34.2	Irlande
Israel	98.0	98.0	98.0	18.1	17.7	17.2	Israël
Italy	24.0	828.0	649.0	0.4	14.5	11.3	Italie
Malta	16.0	16.0	16.0	44.4	43.2	43.2	Malte
Netherlands	219.0	238.0	251.0	14.2	15.4	16.2	Pays-Bas
Norway	199.6	166.0	144.0	46.2	38.1	32.9	Norvège
Poland	324.0	382.0	327.0	8.4	9.9	8.5	Pologne
Portugal	103.0	136.0	43.6	10.4	13.7	4.4	Portugal
Romania	64.4	30.9	68.6	2.8	1.4	3.0	Roumanie
Slovakia	41.1	41.7	46.9	7.7	7.8	8.7	Slovaquie
Spain	402.2	483.8	506.5	10.3	12.3	12.9	Espagne
Sweden	122.0	160.0	156.0	13.9	18.1	17.6	Suède
Switzerland	162.4	169.4	156.0	23.2	24.1	22.1	Suisse
Turkey	123.0	134.0	304.0	2.0	2.2	4.8	Turquie
United Kingdom	696.4	737.3	825.2	11.9	12.6	14.1	Royaume-Uni
Other countries	21.3	21.3	22.0	0.9	0.9	0.9	Autres pays
EUROPE	4682.5	5819.2	5676.8	8.2	10.1	9.8	EUROPE
Russian Federation	676.0	619.0	460.0	4.6	4.2	3.1	Fédération de Russie
Canada	631.0	506.0	561.0	21.6	17.1	18.7	Canada
United States	6875.0	6386.0	6179.0	26.4	24.3	23.2	Etats-Unis
NORTH AMERICA	7506.0	6892.0	6740.0	25.9	23.5	22.7	AMERIQUE DU NORD
Japan	1551.0	1551.0	1551.0	12.4	12.4	12.3	Japon

ANNEX
Table 6

HARDBOARD - PANNEAUX DURS

APPARENT CONSUMPTION - CONSOMMATION APPARENTE

Country	Total (1000 m3)			Per capita (m3/1000 capita)			Pays
	1994	1995	1996	1994	1995	1996	
Austria	75.0	67.0	67.0	9.3	8.3	8.3	Autriche
Belgium-Luxembourg	149.0	149.7	140.6	14.2	14.2	13.3	Belgique-Luxembourg
Bulgaria	54.0	54.0	54.0	6.4	6.4	6.4	Bulgarie
Cyprus	30.0	28.0	28.0	41.1	37.8	37.8	Chypre
Czech Republic	52.0	69.0	92.9	5.0	6.7	9.0	République tchèque
Denmark	100.0	103.0	99.0	19.2	19.7	18.8	Danemark
Finland	44.0	52.0	55.0	8.6	10.2	10.7	Finlande
France	344.5	329.0	324.0	5.9	5.7	5.6	France
Germany	784.0	837.0	703.0	9.6	10.3	8.6	Allemagne
Greece	122.0	122.0	122.0	11.7	11.7	11.7	Grèce
Hungary	19.1	33.8	33.0	1.9	3.3	3.2	Hongrie
Iceland	3.0	3.0	3.0	11.1	11.1	11.1	Islande
Ireland	84.0	119.0	122.0	23.5	33.1	33.9	Irlande
Israel	76.0	76.0	76.0	14.1	13.7	13.3	Israël
Italy	22.0	765.0	683.0	0.4	13.4	11.9	Italie
Malta	12.0	12.0	12.0	33.3	32.4	32.4	Malte
Netherlands	145.0	167.0	183.0	9.4	10.8	11.8	Pays-Bas
Norway	42.8	36.0	36.0	9.9	8.3	8.2	Norvège
Poland	222.0	305.0	372.0	5.8	7.9	9.6	Pologne
Portugal	99.0	132.0	40.0	10.0	13.3	4.0	Portugal
Romania	63.6	28.8	66.5	2.8	1.3	2.9	Roumanie
Slovakia	13.1	10.7	16.8	2.4	2.0	3.1	Slovaquie
Spain	408.0	485.0	508.0	10.4	12.4	12.9	Espagne
Sweden	111.0	144.0	132.0	12.6	16.3	14.9	Suède
Switzerland	138.8	124.8	130.0	19.9	17.7	18.4	Suisse
Turkey	123.0	134.0	304.0	2.0	2.2	4.8	Turquie
United Kingdom	624.4	681.3	757.2	10.7	11.6	12.9	Royaume-Uni
Other countries	7.5	7.2	7.9	0.3	0.3	0.3	Autres pays
EUROPE	3968.8	5075.3	5167.9	6.9	8.8	9.0	EUROPE
Russian Federation	656.4	586.0	431.0	4.4	4.0	2.9	Fédération de Russie
Canada	235.0	171.0	227.0	8.0	5.8	7.6	Canada
United States	3623.0	3276.0	3354.0	13.9	12.4	12.6	Etats-Unis
NORTH AMERICA	3858.0	3447.0	3581.0	13.3	11.8	12.1	AMERIQUE DU NORD
Japan	908.0	908.0	908.0	7.3	7.3	7.2	Japon

SOME FACTS ABOUT THE TIMBER COMMITTEE

The Timber Committee is a principal subsidiary body of the ECE (UN Economic Commission for Europe) based in Geneva. It constitutes a forum for cooperation and consultation between member countries on forestry, forest industry and forest product matters. All countries of Europe; the former USSR; United States of America, Canada and Israel are members of the ECE and participate in its work.

The ECE Timber Committee shall, within the context of sustainable development, provide member countries with the information and services needed for policy- and decision-making regarding their forest and forest industry sector ("the sector"), including the trade and use of forest products and, when appropriate, formulate recommendations addressed to member Governments and interested organizations. To this end, it shall:

1. With the active participation of member countries, undertake short-, medium- and long-term analyses of developments in, and having an impact on, the sector, including those offering possibilities for the facilitation of international trade and for enhancing the protection of the environment;

2. In support of these analyses, collect, store and disseminate statistics relating to the sector, and carry out activities to improve their quality and comparability;

3. Provide the framework for cooperation e.g. by organizing seminars, workshops and *ad hoc* meetings and setting up time-limited *ad hoc* groups, for the exchange of economic, environmental and technical information between governments and other institutions of member countries that is needed for the development and implementation of policies leading to the sustainable development of the sector and to the protection of the environment in their respective countries;

4. Carry out tasks identified by the UN/ECE or the Timber Committee as being of priority, including the facilitation of subregional cooperation and activities in support of the economies in transition of central and eastern Europe and of the countries of the region that are developing from an economic point of view;

5. It should also keep under review its structure and priorities and cooperate with other international and intergovernmental organizations active in the sector, and in particular with the FAO (Food and Agriculture Organization of the United Nations) and its European Forestry Commission and with the ILO (International Labour Organisation), in order to ensure complementarity and to avoid duplication, thereby optimizing the use of resources.

More information about the Committee's work may be obtained by writing to:

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UN/ECE Trade Division
Palais des Nations
CH - 1211 Geneva 10, Switzerland
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E-mail: info.timber@unece.org

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